

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1947



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

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(HELMINTHOLOGY)

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HELMINTHOLOGICAL ABSTRACTS

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Vol. XVI, Part 4

165—Acta Medica Italica di Malattie Infettive e Parassitarie.

- a. GIROLAMI, M., 1947.—“Cisti da echinococco multiple del fegato, pneumoconiosi, malaria cronica recidivata.” 2 (9), 289-292.
- b. SCAFFIDI, V., 1947.—“Sulla sindrome di Loeffler di genesi parassitaria.” 2 (11), 345-347. [English & French summaries p. 347.]
- c. ZITO, P., 1947.—“Tentativi di infestazione di molluschi nostrani con uova di *Schistosoma haematobium*. Osservazioni sulle uova ed azione di alcune sostanze su esse e sul miracidio.” 2 (12), 375-377. [English & French summaries p. 377.]
- d. ZITO, P., 1947.—“Considerazioni cliniche sulla schistosomiasi vescicale.” 2 (12), 386-388.

(165c) Zito has failed to infect experimentally with *Schistosoma haematobium* the molluscs *Planorbis corneus*, *Physa fontinalis* and *Eubania* [= *Helix*] *vermiculata*, from the Naples region.

R.T.L.

166—Acta Medica Scandinavica.

- a. HERNBERG, C. A., 1947.—“On the secretion of gastric juice in recovery after pernicious bothriocephalus anemia.” 129 (1), 12-18.
- b. BONSDORFF, B. VON, 1947.—“Does feeding of *Diphyllobothrium latum* influence the interaction between the intrinsic and the extrinsic factors of Castle? *Diphyllobothrium latum* and pernicious anemia VIII.” 129 (1), 59-76.
- c. BONSDORFF, B. VON, 1947.—“In which part of the intestinal canal is the fish tapeworm found? A questionnaire. *Diphyllobothrium latum* and pernicious anemia IX.” 129 (2), 142-155.
- d. BONSDORFF, B. VON, 1947.—“The site of infestation with fish tapeworm determined by means of intestinal intubation. *Diphyllobothrium latum* and pernicious anemia. X.” 129 (3), 213-233.

(166a) As in pernicious anaemia associated with *Diphyllobothrium latum* the worm is constantly situated high up in the intestine, Hernberg considers it possible that in addition to affecting the interaction of the intrinsic and the extrinsic factors, it may also destroy the gastrin or other secretagogues, thus depriving the ventricular secretion of some physiological stimulants. He believes that this hypothesis may explain the decreased secretion in the ventricle while tapeworm anaemia is in progress, and also the improvement in secretion after expulsion of the worm, although it does not explain why fully normal values were not obtained in the present series of 24 cases examined 1-22 years after administration of a vermifuge. E.M.S.

(166b) The addition of fresh or dried suspension of ground *Diphyllobothrium latum* to mixtures of intrinsic and extrinsic factors did not nullify their anti-anaemic effect when given to patients with cryptogenetic pernicious anaemia. The administration of dried *D. latum* did not hinder spontaneous recovery after vermifuge in pernicious tapeworm anaemia, in patients receiving extrinsic factor in their diet. The addition of dried *D. latum* to preparations of pig's stomach did not diminish their therapeutic effect. The significance and possible explanations of these findings are discussed. E.M.S.

(166c) From 70 replies to a questionnaire concerning the localization of *Diphyllobothrium latum*, von Bonsdorff reports that at abdominal operation and at autopsy, the tapeworm is found most frequently in the ileum, rarely in the jejunum, and sometimes (by chance?) in the colon. The worm may also be found in the gall-bladder. It may sometimes cause intestinal

* Titles so marked throughout this number have not been seen in the original.

obstruction. Vomiting of the tapeworm is not frequent, but is characteristic. Among patients vomiting the worm, anaemia had been diagnosed more often than among tapeworm patients in general; it is thus possible that vomiting may indicate localization in the upper part of the small intestine. E.M.S.

(166d) A study by intestinal intubation of a series of *Diphyllobothrium* patients, with and without associated pernicious anaemia, showed that the worms were located in the jejunum in those with manifest pernicious anaemia while in the others the worms were in the ileum. It is concluded that the presence of the worms in the jejunum causes pernicious anaemia by impairing the interaction between the extrinsic and intrinsic factors of Castle. R.T.L.

167—Acta Medica Scandinavica. Supplementum.

- a. BONSDORFF, B. VON, 1947.—“‘Castle’s test’ in pernicious tapeworm anemia. *Diphyllobothrium latum* and pernicious anemia VII.” 128, Suppl. 196, pp. 456–477.

(167a) Experiments are recorded from which it appears that in pernicious tapeworm anaemia of *Diphyllobothrium latum* infections, mixtures of normal human gastric juice (intrinsic factor) and meat or yeast (extrinsic factor) at neutral reaction are unable to produce a significant improvement in the blood values. Possibly the tapeworm prevents the interaction between the extrinsic and intrinsic factors supplied from outside, and can inhibit this interaction which normally takes place *in vivo*. These results are contrasted with those found in cases of cryptogenic pernicious anaemia. R.T.L.

168—Acta Tropica. Basel.

- a. KREIS, H. A., 1947.—“Eine systematische Bemerkung zur Arbeit: H. Vogel und W. Minning: Ueber die Einwirkung von Brechweinstein, Fuadin und Emetin auf *Bilharzia japonica* und deren Eier im Kaninchenversuch. (Acta tropica, vol. 4. 1947.)” 4 (3), 259–260.
b. PICK, F., 1947.—“Le mécanisme de l’éclosion des oeufs d’*Ascaris megalocephala* in vitro.” 4 (4), 346–348.

(168a) Vogel & Minning [see Helm. Abs., 16, No. 63a] used the name *Bilharzia japonica* on the ground that Meckel used the term *Bilharzia* in 1856, two years before Weinland created the genus *Schistosoma*. Kreis maintains that prolonged search has failed to reveal Meckel’s use of *Bilharzia*, and that until this can be established, Weinland’s *Schistosoma* must hold good. [But see also Helm. Abs., 17, No. 59a.] E.M.S.

(168b) Larvae escape from artificially ruptured *Ascaris* eggs by squeezing their anterior end through the opening, wriggling, and finally by levering the free end of the body against the outside of the shell. Pick was able to observe spontaneous emergence from undamaged embryonated eggs placed on 2% glucose agar in petri dishes. The shell became flexible and was eventually ruptured by the movements of the larva, which emerged still enclosed in the internal membrane. Finally this was torn by the larva. Free larvae were first observed after 50 days. E.M.S.

169—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

- a. ANON, 1947.—“Diseases of the rabbit.” No. 316, 8 pp. [Revised edition.]

170—Agricultura Tecnica. Chile.

- a. MUJICA R., F. & ASTORGA B., E., 1947.—“Experimentos con el nemacida ‘D-D’ en nuestro país.” 7 (2), 204–209. [English summary p. 209.]
b. BRNCIC J., D., 1947.—“Ascariidiosis hepática en el cerdo.” 7 (2), 225–227.

(170a) The authors tested the effect of D-D mixture on land where tobacco had been severely affected by “anguillulosis” the previous year. Three Latin squares were arranged, each consisting of 16 plots of 1.2 × 3 metres, of which four were injected with D-D at the rate of 2 c.c. per square foot, four at 3 c.c. per square foot, four at 4 c.c. per square foot and four were left untreated. A Berthoud injector was used and injections were made at distances of

30.5 cm. to a depth of 20 cm. One Latin square was sown with kidney beans, variety Kentucky Wonder, the second planted with tomatoes and the third with tobacco. The most marked effects were shown on the tomato plots, where no fruit was produced on the control plots and the differences between the means of the treated plots were highly significant. In the tobacco plots the differences were significant, but not to such a high degree. No results were recorded from the bean plots since germination was very erratic. The chemical did not eradicate the nematodes, the species of which is not named.

M.T.F.

171—Agricultural Extension Circular. Hawaii University.

a. BEMBOWER, W., 1947.—“Nematode control.” No. 219, 2 pp.

(171a) In this mimeographed circular Bembower gives a short semi-popular account of the root-knot nematode and the root galls produced by it. He also gives practical instructions for the fumigation of small plots with such fumigants as D-D mixture and Dowfume N.

T.G.

172—Agricultural Gazette of New South Wales.

a. CHRISTIE, D. G., 1947.—“Enterohepatitis or blackhead in poultry.” 58 (12), 667-669.

(172a) Blackhead in poultry, due to *Histomonas meleagridis* transmitted in the eggs of *Heterakis gallinae*, is responsible in New South Wales for a mortality reaching 100% in turkey poults especially between three and eight weeks old. Fowls are apparently less susceptible, but instances of a 50% mortality have been observed. Those most susceptible are between four weeks and six months old.

R.T.L.

173—American Journal of Clinical Pathology.

a. BRODY, H., 1947.—“Nematode infestation in Pangasinan, Luzon, Philippine Islands.” 17 (4), 294-297.

b. HARTZ, P. H. & STADT, F. R. VAN DE, 1947.—“Microfilarial granulomas, elephantiasis and adenosis of the breast.” 17 (10), 823-826.

(173a) Hookworm was found in 235 (50.1%) of 469 male Filipinos, and in only 10 (12.3%) of 81 female Filipinos. *Ascaris* and *Trichuris* were roughly equal in the two sexes, with incidences of 74.4% and 42.6% respectively. Among 140 American soldiers, *Ascaris* was present in 14, *Trichuris* in 5 and *Strongyloides* in one; none of them carried hookworm.

E.M.S.

174—American Journal of Pathology.

a. STRYKER, W. A., 1947.—“The intestinal phase of human trichinosis.” 23 (5), 819-827.

b. BRACKEN, M. M., BAILEY, Jr., W. R. & THOMAS, Jr., H. M., 1947.—“The pathology of schistosomiasis japonica.” [Abstract of paper presented at the 44th Annual Meeting of the American Association of Pathologists and Bacteriologists, Chicago, Ill., May 16 and 17, 1947.] 23 (5), 894. [Discussion pp. 895-896.]

c. LIPPINCOTT, S. W., ELLERBROOK, L. D. & RHEES, M., 1947.—“Correlation of laboratory tests with the pathology of schistosomiasis japonica in American soldiers.” [Abstract of paper presented at the 44th Annual Meeting of the American Association of Pathologists and Bacteriologists, Chicago, Ill., May 16 and 17, 1947.] 23 (5), 894-895. [Discussion pp. 895-896.]

(174a) Stryker reports finding living adult trichinae, including gravid females, in the intestine of a man who had died 54 days after eating raw infected pork. The clinical course was characterized by diarrhoea, marked muscular pain, fever and terminal respiratory distress. Electrocardiograph findings indicated myocardial damage, and neurological abnormalities suggested cerebral damage. Examination of skeletal muscle from many areas showed larvae with commencement of cyst formation, and Gould, by a digest method, revealed an average of 2,677 larvae per gm. of diaphragm. The significance of the prolonged intestinal phase is obvious, and this record is of the longest known period. Purgation, with careful attention to fluid balance, at present offers the most hope for reducing the number of gravid worms.

M.R.Y.

(174b) This abstract of a paper to be published in a later issue of the American Journal of Pathology, deals with the *post-mortem* findings in acute cases of *Schistosoma japonicum* infection. The earliest lesions are usually miliary caseous nodules or abscesses 0.5–10.0 mm. in diameter. In some there is a necrotic zone surrounded by eosinophilic and neutrophilic leucocytes. Later the centrally placed egg, either viable or degenerated, is surrounded by epithelioid cells and fibroblastic proliferation in a richly vascular zone. Frequently the eggs are surrounded by multinucleated giant cells. The early lesions may coalesce to form large necrotic areas with fibroblastic and capillary proliferation succeeded by fibrosis. The later lesions correspond to a foreign body reaction. R.T.L.

(174c) This abstract deals with the plasma and blood cell concentrations, and the urinary and faecal excretion of antimony in cases of schistosomiasis japonica treated with trivalent antimony compounds. Successive courses of antimony cannot be given with impunity. R.T.L.

175—American Journal of Physiology.

- a. GRANA, A., MANN, F. C. & ESSEX, H. E., 1947.—“Influence of the liver on the shock produced by extracts of certain parasites.” 148 (1), 243–252.

(175a) In dogs profound shock follows the intravenous injection of purified extracts of *Ascaris* or of hydatid fluid. Little or no effect is produced in hepatectomized dogs. Evidence is given that the principal cause of the observed fall of blood pressure is congestion of the liver. The injection of crude and deproteinized *Ascaris* extract also produces a marked fall of blood pressure in liverless dogs. In newborn pups intravenous injections of the purified *Ascaris* extract caused markedly decreased blood pressure but those heavily infected with *Toxocara canis* were immune. R.T.L.

176—American Journal of Tropical Medicine.

- a. WRIGHT, W. H., McMULLEN, D. B., BENNETT, H. J., BAUMAN, P. M. & INGALLS, Jr., J. W., 1947.—“The epidemiology of schistosomiasis japonica in the Philippine Islands and Japan. III. Surveys of endemic areas of schistosomiasis japonica in Japan.” 27 (4), 417–447.
- b. ASH, J. E., 1947.—“The lymph node in tropical diseases.” 27 (4), 483–491.
- c. HOOD, M., 1947.—“The present status of hookworm infection in Florida.” 27 (4), 505–516.
- d. HUNTER, III, G. W., BENNETT, H. J., INGALLS, Jr., J. W. & GREENE, E., 1947.—“The molluscan intermediate host and schistosomiasis japonica. III. Experimental infection of *Oncomelania quadrasi*, the molluscan intermediate host of *Schistosoma japonicum*.” 27 (5), 597–602.
- e. OTTOLINA, C., 1947.—“The rectoscopic biopsy by transparency. A new diagnostic method for *Schistosoma mansoni*.” 27 (5), 603–606.
- f. BUTTS, D. C. A., 1947.—“Filarial infection in Costa Rica.” 27 (5), 607–615.
- g. FRANKS, M. B., CHENOWETH, Jr., B. M. & STOLL, N. R., 1947.—“Reactions of natives of Okinawa and of American personnel, to skin tests with test antigen prepared from microfilariae of *Dirofilaria immitis*.” 27 (5), 617–632.
- h. KUNTZ, R. E., STIREWALT, M. A. & BUCHHEIT, J. R., 1947.—“Method for testing ointments and fabrics to determine their effectiveness as barriers to schistosome cercariae.” 27 (6), 691–697.

(176a) This report from the U.S. Commission on Schistosomiasis summarizes its efforts to determine the distribution of *Schistosoma japonicum* and the rate of infection of the snail intermediaries in the five known endemic areas in Japan, and incorporates information compiled from national prefectural and local health authorities. 1,688 schoolchildren between 8 and 15 years of age were examined; 29.2% of the male children and only 16.7% of the female children were positive. The Japanese had found that calcium cyanamide was very effective against the molluscan carrier and had effected a material reduction of schistosome infection. The report is illustrated by 7 distribution maps and 18 tables, and gives a wealth of detail which cannot be adequately abstracted. Fouadin, although promising in acute cases, seems to give little improvement in chronic cases. R.T.L.

(176b) *Wuchereria* infections are among the diseases in which the lymph nodes are involved. Ash is of opinion that there is little reaction while the adults are living and movable in the lymphatic vessels, but when they die or become impacted in vessels or when the larvae invade surrounding tissues there is thrombosis and inflammatory reaction, both suppurative and granulomatous. The extravascular lesions may be the effect of toxins or of excretory products of the living worms. Concentration of eosinophiles may result in eosinophilic abscesses. R.T.L.

(176c) The incidence and intensity of hookworm infection in Florida is greater in the western section than in the other areas. Its intensity has diminished markedly during the past ten years but the disease is still a public health problem. Approximately 40% of the 8,017 white children examined were infected, but only 3.9% of the whole (10% of the positive cases) were classified as moderate or heavy infections. The incidence and intensity in 1,264 coloured children was very low: 13.3% infected, only 0.3% being moderate or heavy infections. There was a marked diminution in incidence and intensity about the 20th year of age, and the disease was most marked in those of school age. A simple technique for estimating intensity of infection was devised, based on egg-count per cover slip preparation of the standard zinc sulphate concentration method of Faust. R.T.L.

(176d) *Oncomelania quadrasi* were most successfully infected with *Schistosoma japonicum* when 5-10 miracidia were used. Complete development in this mollusc required about eleven weeks under laboratory conditions on Leyte. The mortality rate following massive infections was high but all the survivors were infected. R.T.L.

(176e) A new technique for the diagnosis of schistosome infection is described. A tissue fragment containing mucosa and submucosa is removed by biopsy forceps from the upper half of the rectal ampulla, immersed in water for 3-5 minutes and compressed between two slides; a drop of water is then added to the transparent film which is covered, pressed gently and examined microscopically. The presence of living miracidia within the eggs can be observed. These are killed by biopsy methods in which caustic potash is used. R.T.L.

(176f) A filariasis survey was carried out in 1946 by Butts at Puerto Limon, Bataan, Quepos and Cahuita, in Costa Rica. The sheathed nocturnal microfilariae found were identified as *Wuchereria bancrofti*. The incidence of infection varied from 1% on the Pacific Coast to 15% in certain areas on the Atlantic Coast. Among the indigenous population infection was considerably higher among negroes than among the white population. It is suggested that the infection was originally introduced via Limon from Jamaica and the West Indies. *Culex quinquefasciatus* is the local vector so far implicated. R.T.L.

(176g) Antigen prepared from microfilariae of *Dirofilaria immitis* tested on over 400 persons (of whom 69 were American service personnel on Guam, almost all uninfected with filariasis, and the remainder were infected natives of a highly endemic area of Okinawa) gave fewer false positive reactions than one prepared from adult *D. immitis* and could be used at an optimum dilution of 1:1,000. Negative reactions were obtained in two cases of less than six months' duration, and there was a high incidence of negative reactions in patients in the older age groups and in those with circulating microfilariae. The test was most useful in patients so lightly infected that they were not desensitized by antigen arising from their own infection, a type of patient in whom diagnosis has been most difficult. It was noted that in Okinawans the associated incidence of elephantiasis was low, only eight cases being seen in the series of patients examined. E.M.S.

(176h) The sites of cercarial penetration by *Schistosomatium douthitti* have a fairly uniform appearance in white rabbits. This fact was utilized as a quantitative index of penetration in the methods devised by the authors for testing the protective value of ointments and fabrics against schistosome infection. Counts were made of the penetration sites found 24 hours after exposure to a counted number of cercariae. The test rabbits could be used repeatedly. The test containers comprised pieces of glass tubing, fitted into a belt made from a strip of automobile

inner tube rubber cut with two tongues for the attachment of buckles so that the belt could be pulled tight when applied to the anaesthetized experimental animals. Each area of application was circled by picric acid or indian ink. R.T.L.

177—American Midland Naturalist.

- a. MANTER, H. W., 1947.—“The digenetic trematodes of marine fishes of Tortugas, Florida.” 38 (2), 257–416.
- b. VAN CLEAVE, H. J., 1947.—“An alphabetical index to the generic names of hosts of Acanthocephala of the world included in Anton Meyer’s monograph.” 38 (2), 417–426.
- c. VAN CLEAVE, H. J., 1947.—“*Travassosia tumida* n.sp., first record of the occurrence of this acanthocephalan genus in North America.” 38 (2), 427–433.
- d. RAUSCH, R., 1947.—“Observations on some helminths parasitic in Ohio turtles.” 38 (2), 434–442.

(177a) Manter has prepared an exhaustive account of the fish trematodes of Dry Tortugas. The following names are new, 44 new species, 9 new genera and 44 new combinations being recognized:—*Pleurogonius candibulus* n.comb. for *Barisomum candibulum*, *Hapladena ovalis* n.comb. for *Deradena ovalis*, *H. leptotelea* n.sp., *Opistholebes adcotylophorus* n.sp., *Pseudocreadium anandrum* n.sp.; *Opechona gracilis* n.comb. for *Prodistomum gracile* nec *O. gracilis* (Manter, 1931) Ward & Fillingham, 1934; *O. menidia* nom.nov. for *O. gracilis* (Manter, 1931); *Apocreadium balistis* n.sp., *Homalometron elongatum* n.sp., *Crassicutis marina* n.sp., *Opisthoporus epinepheli* n.g., n.sp., *O. mycteropercae* n.sp., *Lepidapedon levenseni* n.comb. for *Aephmidiogenes levenseni*, *Myzoxenus lachnolaimi* n.sp., *Multitestis chaetodoni* n.sp., *PLAGIOPORINAE* n.subfam., *Opegaster synodi* n.sp., *Opecoeloides brachyteleus* n.sp., *O. elongatus* n.sp., *Neonotoporus yamagutii* n.sp., *Pseudopecoeloides gracilis* n.sp., *P. equesi* n.sp., *Pseudopecoelus priacanthi* n.comb. for *Allocreadium priacanthi*, *Neopecoelus scorpaenae* n.g., n.sp., *N. holocentri* n.sp., *Genitocotyle atlantica* n.sp., *Horatrema crassum* n.sp., *Stephanostomum promicropsi* n.sp., *S. coryphaenae* n.sp., *S. pagrosomi* n.comb. for *Echinostephanus pagrosomi*, *S. ditrematis* n.comb. for *E. ditrematis*, *S. sentum* n.comb. for *Stephanochasmus sentus*, *Steganoderma parexocoeti* n.sp., *Brachyenteron parexocoeti* n.sp., *S. hemiramphi* n.sp., *S. elongatum* n.sp., *Diptherostomum americanum* n.sp., *Diplangus parvus* n.sp., *D. miolecithus* n.sp., *Pycnadenoides calami* n.sp., *Megalomyzon robustus* n.g., n.sp., *Tergestia acuta* n.sp., *Haplospianchus kyphosi* n.sp., *Bivesicula hepsetiae* n.sp., *Phyllodistomum carangis* n.sp., *MEGAPERIDAE* nom. nov. for *Euryperidae*, *Metadena adglobosa* n.sp., *Anahemiurus microcercus* n.g., n.sp., *Lecithochirium mecosaccum* n.sp., *L. parvum* n.sp., *L. texanum* n.comb. for *Sterrhurus texanus*, *Dissosaccus* n.g. for *S. laevis*, *Lethadena* n.g. for *S. profundus*, *Adinosoma* n.g. for *S. robustus*, *Aphanurus monolecithus* n.comb. for *S. monolecithus*, *S. microcercus* n.sp., *Parectenurus americanus* n.g., n.sp., *Macradenina acanthuri* n.g., n.sp., *Sclerodistomum sphaeroidis* n.sp., *Psettarium cardiocolum* n.sp. *Cotylogaster chaetodipteri* falls into synonymy with *Lobatostoma ringens*, *Proisorhynchus gracilescens* with *Rhipidocotyle transversale*, *Bianium adplicatum* with *B. plicatum*, *Gargorchis* with *Rhagorchis*, *Gnathomyzon* with *Myzoxenus*, *Sphincterostomatidae* with *Opecoelidae*, *Dideutosaccus* with *Opecoelina*, *Podocotyle breviformis* with *Hamacreadium oscitans*, *Stephanostomum longisomum* and *S. filiforme* with *S. ditrematis*, *Macia* with *Xystretum*, *Catoptroides magnum*, *C. aluterae* and *X. papillosum* with *X. solidum*, *Siphoderina* with *Metadena*, *Mehrailla* with *Mehracola*, *Ceratotrema* with *Lecithochirium*, *L. medius* with *L. exodicum*, *Sterrhurus gymnothoracis* with *S. fusiformis*, *Dinurus coryphaenae* with *D. longisinus*, *Lecithophyllum fuscum* with *Aponurus intermedius*, “*Lecithaster gibbosus* (Rud.)” of Linton (in part) with *Brachadena pyriformis*, *Dichadena* with *Lecithaster*.

E.M.S.

(177b) Meyer’s monograph on Acanthocephala in Bronn’s Klassen und Ordnungen des Tierreichs (1932–33) lacked an alphabetical list of hosts. One for the host genera has now been compiled by Van Cleave.

R.T.L.

(177c) Van Cleave gives reasons for concluding that *Travassosia* Meyer, 1931 is a *nomen nudum* and that its availability dates from 1932 when Meyer described it with *Hamanniella*

carinii as the only species. *Travassosia carinii* (Travassos, 1916) Meyer, 1932 thus automatically becomes type of the genus. Van Cleave now describes *T. tumida* n.sp. from *Didelphis virginiana virginiana* in Oklahoma. Its body is much more robust and the hooks distinctly smaller than in *T. carinii*. R.T.L.

(177d) Thirty-three species of helminths, comprising one cestode, 19 trematodes, 12 nematodes and one acanthocephalan, have been collected from turtles in Ohio. The localities from which the turtles were collected are shown on a map. The parasites are tabulated under hosts, and brief notes on the degree of infestation are given under each parasite species. The degree of parasitism apparently increased with age. R.T.L.

178—Anais do Instituto de Medicina Tropical, Lisboa.

- a. PINTO, A. R. & ALMEIDA, C. L. DE, 1947.—“ Contribuição para o estudo das filariases da Guiné Portuguesa.” 4, 59–89. [English & French summaries pp. 86–88.]
- b. MEIRA, M. T. V. DE, NOGUEIRA, J. F. P. & SERRAS SIMÕES, T., 1947.—“ Contribuição para o estudo do parasitismo intestinal nas Ilhas do Sal, Boa Vista e S. Nicolau (Cabo Verde).” 4, 239–256. [English & French summaries pp. 255–256.]
- c. COITO, A. DE M., 1947.—“ Contribuição para o estudo da epidemiologia do quisto hidático humano em Portugal. Sobre o grau de infestação dos cães errantes de Lisboa pela *Echinococcus granulosus*. ” 4, 285–295. [English & French summaries pp. 293–294.]

(178a) *Wuchereria bancrofti* occurs in 49.2% of the population of Costa de Baixo (Portuguese Guinea). 32.6% have signs of infection, usually hypertrophy of the epitrochlear lymph node, and 10.1% have elephantiasis, usually in the legs. The intermediate host is *Anopheles gambiae* but *Taeniorhynchus* sp. (?) is also suspected. *Acanthocheilonema perstans* occurs in 3.1%: its microfilaria is more frequently found in males, in adults and in old people. R.T.L.

(178b) The incidence of intestinal helminths in the native inhabitants of the Cape Verde Islands of Sal, Bõa Vista and São Nicolau is tabulated. The most prevalent are *Ascaris lumbricoides*, *Trichuris trichiura* and *Enterobius vermicularis* which are recorded from all three islands. *Taenia solium* was observed in five cases on Sal and two on Bõa Vista. Three cases with *T. saginata* and two with *Hymenolepis nana* are noted for Sal. There were some cases of hookworm but all of these had acquired their infection in the island of St. Thomas. R.T.L.

(178c) *Echinococcus granulosus* was found in 5 out of 150 stray dogs collected from the streets of Lisbon. Between 1934 and 1943 0.11% of the patients in the civil hospitals and 0.16% of those in the hospital of the Medical School had hydatid cysts. The incidence of the following species of helminths found in dogs is tabulated: *Dipylidium caninum* 72%, *Taenia serrata* 39.3%, *Taenia serialis* 2%, *Echinococcus granulosus* 3.3%, *Toxascaris leonina* 26%, *Toxocara canis* 14.6%, *Ancylostoma caninum* 4.6%, *Uncinaria stenocephala* 45.3%, *Dipetalonema dracunculoides* 0.6%, *Dirofilaria immitis* 0.6% and *Gastrodiscidae* [?] 0.6%. R.T.L.

179—Annales d'Épiphyties.

- a. NIGON, V. & RITTER, M., 1947.—“ Étude sur une maladie vermiculaire du tabac.” 13 (2), 119–131.

(179a) Nigon & Ritter have studied a disease of tobacco plants caused by the stem eelworm, *Ditylenchus dipsaci*, in Alsace. During 1940–45 the disease became more prevalent and destructive. Observation showed that the parasites attack and cause swellings in the cortical tissues at the base of the stem of young plants, which become weakened and tend to fall over. The disease seems to be associated with (i) a peculiar type of loess soil, (ii) the too frequent growing of tobacco on the same soil, and (iii) the amount of rainfall in the months of June and July. Control measures are discussed but no specific remedy is suggested. T.G.

180—Annales de Médecine Vétérinaire.

- a. DERZELLE, E., 1947.—“Un cas de perforation intestinale par anoplocéphales chez le cheval.” 91, 193-195.
- b. TERACHE, P., 1947.—“Chimiothérapie antihelminthique digestive. La phénothiazine.” 91, 200-219.
- c. BARVAUX & DERZELLE, 1947.—“L'échinococcose équine.” 91, 241-243.
- d. TERACHE, P. & BIENFET, V., 1947.—“L'influence du pH en chimiothérapie antihelminthique digestive.” 91, 245-257.
- e. BARION, 1947.—“Le parasitisme.” 91, 281-304.

(180b) Terache reviews recent work on phenothiazine as an anthelmintic and summarizes the clinical observations reported on its toxicity. R.T.L.

(180c) Echinococcus cysts were observed in 0.7% of 68,970 horses slaughtered at the Decroix abattoir in France in 1935. At Lausanne 1.8% of the horses slaughtered showed infection. A brief clinical history is given of a case in a brood mare with symptoms of wasting and anaemia. R.T.L.

(180d) Most of this article is devoted to a résumé and discussion of published findings relevant to an evaluation of the influence of pH on anthelmintic action. Some preliminary experiments are described using phenothiazine in buffer solutions with or without oxygenation, from which it is tentatively concluded that anthelmintic action is independent of pH except in so far as the solubility and chemical stability of the drug are affected. E.M.S.

181—Annales Medicinae Internae Fenniae.

- a. HIRVONEN, M., 1947.—“Observations throwing light on the pathogenesis of pernicious tapeworm anemia.” 36 (1), 53-65.
- b. TÖTTERMAN, G., 1947.—“Is the broad tape-worm the causal agent of hypochromic anemia?” 36 (1), 185-190.
- c. VARTIAINEN, I. & BASTMAN-HEISKANEN, L., 1947.—“On the staining of *Diphyllobothrium ova*.” 36 (3), 729-739.

(181a) Hirvonen evokes a theoretical abnormality or “disease” of *Diphyllobothrium latum* involved in the genesis of tapeworm anaemia, in explanation of a case found, 1½ years after vermifuge treatment, to be carrying *D. latum* but no longer anaemic. Three other cases are described in which blood regeneration began spontaneously after vermifuge, but stopped before normal levels were reached and was completed only after liver treatment. Hirvonen postulates an action of the tapeworm toxin on the liver and bone-marrow as well as on the formation of the anti-anaemic factor. E.M.S.

(181b) From a study of 43 cases of hypochromic anaemia in carriers of *Diphyllobothrium latum*, Tötterman reports that the anaemia did not improve in any case following vermifuge alone. The presence of the tapeworm did not impede spontaneous improvement of the blood picture after recovery from an infectious disease, or check the effect of iron administration on post-haemorrhagic or essential hypochromic anaemias. Tötterman concludes that *D. latum* and hypochromic anaemia are not causally related. E.M.S.

(181c) The eggs of *Diphyllobothrium latum* vary in their capacity to colour with eosin and this depends on the vitality of the contained ova. Moribund or dead eggs are most readily stained. Generally the number of living ova was highest in the first few metres of the worm, and very low in the last, although this varied with the individual worm. R.T.L.

182—Annales Medicinae Internae Fenniae. Supplementum.

- a. HIRVONEN, M., 1947.—“On the differential diagnosis between pernicious tapeworm anemia and cryptogenetic pernicious anemia in carriers of *Diphyllobothrium latum*.” 36, Suppl. 2, 39 pp.

(182a) Hirvonen reports 34 cases of pernicious anaemia in carriers of *Diphyllobothrium latum* and elaborates the criteria which enabled a reasonably certain differentiation in 28 of these cases between pernicious tapeworm anaemia (24 cases) and cryptogenetic tapeworm anaemia (4 cases); in the remaining six cases diagnosis remained doubtful because sufficient evidence could not be obtained. Hirvonen emphasizes the importance to the patient of such differential diagnosis. E.M.S.

183—Annales de la Société Belge de Médecine Tropicale.

- a. PEEL, E. & CHARDOME, M., 1947.—“ Note complémentaire sur des filaridés de chimpanzés *Pan paniscus* et *Pan satyrus* au Congo Belge.” 27 (2), 241–250.

(183a) Peel & Chardome describe the morphology of the adult male *Dipetalonema streptocerca*, three specimens of which were found by them for the first time in the connective tissues of chimpanzees. The worms are 17.5–18.1 mm. long with a maximum width of 46.66 μ . The tail possesses three pairs of pre-anal and two pairs of post-anal papillae and a sixth pair 26.66 μ from the tip of the tail which terminates in a double cuticular prolongation. The spicules average 338.8 μ and 117.4 μ respectively and there is a small gubernaculum. Adult forms of *Mf. rodhaini* Peel & Chardome, 1946, were also found in subcutaneous connective tissue of chimpanzees, and are assigned to the genus *Dipetalonema*. The male is 19.9 mm. long with a maximum width of 53.32 μ . There are two pairs of pre-anal and two pairs of post-anal papillae and a single pair 6.66 μ from the latter. The spicules are 366.63 μ and 143.31 μ long. The female averages 25.216 mm. long by 83.3–86.6 μ in width. The genital opening averages 502.15 μ from the anterior extremity.

J.J.C.B.

184—Annali d'Igiene.

- a. ATTIMONELLI, R., 1947.—“ Ulteriori ricerche sull'anchilostomiase in Puglia.” 57 (5), 272–273.

(184a) Attimonelli confirms the presence in the province of Lecce, Italy, of a focus of human ancylostomiasis due to *Necator americanus*.

E.M.S.

185—Annals of Internal Medicine.

- a. TARR, L., 1947.—“ Effect of the antimony compounds, fuadin and tartar emetic, on the electrocardiogram of man; a study of the changes encountered in 141 patients treated for schistosomiasis.” 27 (6), 970–988.

186—Annals and Magazine of Natural History.

- a. BAYLIS, H. A., 1947.—“ The nematode genus *Dujardinascaris* (nom.nov. pro *Dujardinia*) in Crocodilia, with a description of a new species.” Ser. XI, 14 (110), 123–134.

(186a) As the generic name *Dujardinia* Geddoelst, 1916, is preoccupied for a polychaete and a protozoon, Baylis suggests the name *Dujardinascaris* and describes a new species, *D. alata* n.sp., from *Caiman sclerops* in Trinidad. It is provided with a pair of conspicuous cervical alae which extend from the base of the lips for a distance of up to 5 mm. Baylis recognizes nine species of *Dujardinascaris* from Crocodilia: they are *D. tasmani*, *D. dujardini*, *D. paulista*, *D. alata*, *D. vandenbrandeni*, *D. australiensis*, *D. longispicula*, *D. woodlandi* and *D. salomonis*.

P.A.C.

187—Annals of the New York Academy of Sciences.

- a. WRIGHT, W. H., 1947.—“ Animal parasites transmissible to man.” 48 (6), 553–574. [Discussion pp. 575–576.]

(187a) In this paper which forms one of a series by various authors on “ The Relation of Diseases in the Lower Animals to Human Welfare ”, Wright sets out the helminth and protozoal parasites of lower animals transmissible to man under the following heads: (i) parasites with man as the principal host, but occurring occasionally in lower animals; (ii) parasites with lower animals as the principal host, but occurring occasionally in man; (iii) parasites having their larval stage in lower animals and the adult stage in man; (iv) parasites having their adult stage in lower animals and the larval stage in man; (v) parasites occurring frequently in both man and lower animals, with the latter serving as important reservoir hosts; (vi) parasites occurring frequently in both man and lower animals, with the latter not serving as important reservoir hosts. Under each of these categories those forms which are responsible for inducing disease in man are dealt with in detail. In a useful appendix the parasites are then listed under species with the lower animals acting as natural hosts of each and the localities and frequency of their

natural incidence in man, experimental infections being excluded. In a discussion of the paper Stunkard draws attention to the importance of close association and of dietary deficiencies in predisposing to infection, and the role of larval stages in producing lesions in hosts in which they cannot complete their full development. R.T.L.

188—Annals of Tropical Medicine and Parasitology.

- a. KIRK, R., 1947.—“Observations on onchocerciasis in the Bahr-el-Ghazal province of the Sudan.” 41 (3/4), 357-364.

(188a) A survey of the incidence of onchocerciasis in smallish numbers of people in seven localities in Bahr-el-Ghazal revealed infection rates of 19-90%. The method of diagnosis consisted of the finding of microfilariae in impression smears made from the cut surfaces of small pieces of skin excised with a razor blade. In one area a high incidence was found in persons having no onchocercal nodules nor other signs. The significance of this and of other manifestations of the disease is discussed. *Simulium damnosum* is thought to be the only vector as *S. neavei* appears to be absent from this province. Some remarks are made on the seasonal incidence and habits of *S. damnosum*. J.J.C.B.

189—Antiseptic. Madras.

- a. MUKHERJEE, A., 1947.—“Acute delirious convulsive meningism in ascariasis. A case note.” 44 (3), 180-181.
b. KARMAKAR, S., 1947.—“A case of resisting ascariasis.” 44 (9), 611-612.

190—Archives des Maladies de l'Appareil Digestif et des Maladies de la Nutrition.

- a. BUTTIAUX, R. & ALLAEYS, J., 1947.—“Un foyer autochtone de distomatose hépatique humaine dans la région du Nord de la France.” 36 (11/12), 636-638.

191—Archives of Neurology and Psychiatry. Chicago.

- a. REEVES, D. L. & KERR, R. W., 1947.—“Schistosomiasis japonica with intracerebral granuloma; operative removal with recovery. Report of a case.” 58 (2), 207-220.

(191a) As only two cases have been recorded in the literature of successful surgical removal of an intracranial granuloma due to eggs of *Schistosoma japonicum*, Reeves & Kerr give a detailed account of a case in which a granuloma about the size of an orange was successfully excised from the brain of a U.S. soldier suffering from diplopia, with frequently recurring headaches, following infection contracted in the south-west Pacific war area. R.T.L.

192—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. VIGIL SÓÑORA, C., 1947.—“Equinococosis hidática del corazón.” 30 (2), 157.
b. SURRACO, N. L. & GALEANO MUÑOZ, J., 1947.—“Primer caso documentado, en el Uruguay, de parasitismo humano por *Hymenolepis diminuta*.” 30 (4), 370-378. [English summary p. 378.]
c. YANNICELI, R., SUÁREZ, H. & CASTRO CASAL, E., 1947.—“Granuloma hidatídico pulmonar en el adolescente.” 30 (4), 391-398. [Discussion pp. 394-398.]
d. LASNIER, E. P., ARDAO, H. A. & CASSINELLI, J. F., 1947.—“Estudio del tejido de granulación de la adventicia de un antiguo quiste hidático del hígado operado.” 30 (4), 399-414. [Discussion pp. 413-414.]

193—Arquivos da Faculdade de Higiene e Saúde Pública da Universidade de São Paulo.

- a. MEIRA, J. A., 1947.—“Esquistosomiase mansoni. Subsídio ao estudo de sua incidência e distribuição geográfica no Brasil. Lista bibliográfica brasileira sobre a esquistosomose mansoni (doença de Manson-Pirajá da Silva).” 1 (1), Reprint 146 pp. [English summary pp. 127-128.]

(193a) Schistosomiasis is considered as an important public health problem in Brazil. As the Brazilian literature which is reviewed does not give sufficient data to provide a complete epidemiological picture, surveys using the technique of sedimentation and centrifugation instead of the Willis technique are suggested. The incidence of *Schistosoma mansoni* for the

whole country is estimated at 6.2%, but in the more important foci Meira has found this to be 8.65%, e.g. in the northern states and Minas Gerais. As endemic centres Sergipe and Alagoas are placed highest followed by the states of Bahia, Pernambuco and Minas Gerais. R.T.L.

194—Australian Veterinary Journal.

- a. SEDDON, H. R., 1947.—“Influence of movement of animals on the spread of disease in Australia.” 23 (8), 200–212. [Discussion pp. 209–212.]
- b. SEDDON, H. R., 1947.—“Host snail for liver fluke in West Australia. A correction.” [Correspondence.] 23 (10), 302.
- c. WHITTEN, L. K. & FILMER, D. B., 1947.—“A photosensitized keratitis in young cattle following the use of phenothiazine as an anthelmintic. I.—A clinical description with a note on its widespread occurrence in New Zealand.” 23 (12), 336–340.
- d. CLARE, N. T., 1947.—“A photosensitized keratitis in young cattle following the use of phenothiazine as an anthelmintic. II.—The metabolism of phenothiazine in ruminants.” 23 (12), 340–344.
- e. CLARE, N. T., WHITTEN, L. K. & FILMER, D. B., 1947.—“A photosensitized keratitis in young cattle following the use of phenothiazine as an anthelmintic. III.—Identification of the photosensitizing agent.” 23 (12), 344–348.

(194a) In this article, which covers a wide field, there are few specific references to helminths. Gapeworm disease has so far only been observed in Zoological Gardens. Liver-fluke has recently been recognized in the irrigated pastures on the Murray River and around Lake Alexandrina in South Australia. A suitable vector is said to occur in Western Australia where liver-fluke is unknown [this statement is withdrawn later—see following abstract]. *Bunostomum trigonocephalum* was noticed in Queensland in 1938. Seddon thinks it probable that mild infections with other species may have been overlooked. R.T.L.

(194b) Seddon now points out that *Limnaea lessona*, which occurs in Western Australia where *Fasciola hepatica* is not known, has been shown by Harvey Johnston to be incapable of acting as its intermediate host. [See also preceding abstract.] R.T.L.

(194c) A photosensitized keratitis which occurs in New Zealand in calves 12 to 36 hours after therapeutic dosing with phenothiazine is dependent on the action of light on the cornea. Animals showing severe lachrymation should be housed for the remainder of the day or run in thick bush or timber plantations. The most suitable time for drenching is midnight. R.T.L.

(194d) Phenothiazine sulfoxide, which is formed in the alimentary canal after the administration of phenothiazine as an anthelmintic to calves, is absorbed into the portal blood and converted into leucophenothiazine ethereal sulphate. This is excreted in the bile and urine. Some of the phenothiazine sulfoxide appears to be able to pass from the systemic circulation into the aqueous humour. R.T.L.

(194e) Experimental evidence is given that the photosensitized keratitis of calves following dosing with phenothiazine as an anthelmintic is due to phenothiazine sulfoxide. R.T.L.

195—Bi-Monthly Bulletin. North Dakota Agricultural Experiment Station.

- a. EVELETH, D. F. & GOLDSBY, A. I., 1947.—“Retarded growth in lambs.” 9 (3), 70–72.
- b. GOLDSBY, A. I. & EVELETH, D. F., 1947.—“Cold resisting sheep parasites.” 9 (3), 73–77.
- c. GOLDSBY, A. I. & EVELETH, D. F., 1947.—“Lungworm disease of sheep.” 9 (6), 156–159.
- d. GOLDSBY, A. I. & EVELETH, D. F., 1947.—“Round worms and nodular worms in swine.” 10 (2), 57–58.

(195b) Evidence is given to show that of the parasites of sheep *Haemonchus*, *Oesophagostomum*, *Bunostomum*, *Chabertia* and *Thysanosoma* do not survive whereas *Moniezia*, *Ostertagia*, *Trichostrongylus*, *Nematodirus* and *Trichuris* may survive the winter on pastures at Fargo, North Dakota. Feeding on the ground did not prevent sheep from acquiring helminth infections. J.W.G.L.

(195c) *Dictyocaulus filaria* is present in 18% of sheep and lambs submitted for examination at the North Dakota Agricultural College. Control measures suggested are liberal feeding, the control of gastro-intestinal helminths, and the supply of a phenothiazine-salt mixture.

J.W.G.L.

(195d) *Oesophagostomum dentatum* is recorded in swine in North Dakota, followed by a popular description of the infection.

J.W.G.L.

196—Biological Bulletin of Fukien Christian University. Foochow.

- a. LI, L.-Y. & SHAO, C.-T., 1947.—“A preliminary list of host plants of *Heterodera marioni* in Fukien and Kwangtung.” 6, 1-6.

(196a) Li & Shao give a list of 75 species of cultivated plants and weeds which they have found attacked by *Heterodera marioni* in Fukien and Kwangtung. Fifty of them are new records for the area.

M.T.F.

197—Biológico. São Paulo.

- a. LEPAGE, H. S., GIANNOTTI, O. & ORLANDO, A., 1947.—“Notas sobre o combate ao nematóide da raiz pelo fumigante DD.” 13 (7), 123-124.

(197a) Lepage, Giannotti & Orlando describe a small experiment in which D-D mixture was tested against *Heterodera marioni* in plots of heavily infested ground 2.5 metres square. The D-D mixture was spot-injected 20 cm. deep at points 25 cm. apart, in two plots at the rate of 3.5 c.c. per point, and in two at 7 c.c.; two other plots were left as controls. After 15 days seeds of *Pachyrrhizus tuberosus* were planted 60 cm. apart. Seven months later the plants were lifted and yielded weights of 5,700 kg. (control), 6,800 kg. (3.5 c.c.), and 11,150 kg. (7 c.c.). Root-knot nodules in the respective groups were abundant, moderate, and scanty. Further tests are desirable.

B.G.P.

198—Blood. The Journal of Hematology.

- a. STRANSKY, E. & QUINTOS, F. N., 1947.—“On hookworm anemia (aplastic anemia in hookworm disease).” 2 (1), 63-71.

199—Boletín Mensual. Dirección de Ganadería, Montevideo.

- a. VANNI, V., 1947.—“Metabolismo del calcio y fenómeno alérgicos en las helmintiasis.” Year 1947, 29 (4), 335-350.

(199a) Vanni records the results of three independent lines of investigation, viz., (i) the inhibiting action of calcium salts on the development of *Parascaris equorum* eggs *in vitro*, and of calcium gluconate *per os* on *Hymenolepis fraterna* in wild rats and *Cysticercus pisiformis* in rabbits *in vivo*; (ii) “allergy” in rabbits injected intravenously with coelomic fluid of *Parascaris equorum* after a sensitizing intradermal injection; (iii) the merits of *Anguillula aceti* as a test animal for anthelmintics. It is suggested that calcium therapy may not only arrest the development of helminthiasis, but may also neutralize allergic manifestations due to the absorption of helminth proteins.

E.M.S.

200—Boletín de la Oficina Sanitaria Panamericana.

- a. NOBLE, B. R., 1947.—“Informe preliminar del estudio histopatológico de dos ojos oncocercosos.” 26 (7), 596-606.

201—British Medical Journal.

- a. ANON, 1947.—“Threadworms.” [Questions & Answers.] Year 1947, 1 (4505), 665.
 b. ANON, 1947.—“Treatment of filariasis.” Year 1947, 1 (4506), 686-687.
 c. ANON, 1947.—“Pumpkin seeds as an anthelmintic.” [Questions & Answers.] Year 1947, 2 (4518), 238.
 d. ANON, 1947.—“D.D.T. as an anthelmintic.” [Questions & Answers.] Year 1947, 2 (4532), 805.

(201a) No permanent improvement in two young children with *Enterobius* followed treatment with quassa enemata, carbon tetrachloride and gentian violet, combined with precautions against reinfection. It is stated in an anonymous reply that the use of a rhubarb and sodium bicarbonate mixture over a period is sometimes effective. R.T.L.

(201c) One to two ounces (30–60 gm.) of dried pumpkin seeds preceded by a saline purge and followed a few hours later by castor oil is said to be a safe but unreliable remedy for roundworm and tapeworm, especially *Taenia saginata*. R.T.L.

(201d) As *Enterobius vermicularis* adults are killed when exposed *in vitro* to D.D.T. solution, an enquirer suggests the use of D.D.T. powder on the anal folds at night. In reply it is stated that while this use is not likely to be harmful, it is probably of doubtful efficacy and that D.D.T. should not be used internally. R.T.L.

202—Bulletin de l'Académie Vétérinaire de France.

- a. MAROTEL & PIERRON, 1947.—“Une maladie rare des canards français: l'acuariose.” 20 (1), 41–43.
- b. GUILHON, J., 1947.—“Recherches sur les propriétés anthelminthiques du thionol.” 20 (6), 263–267.

(202a) An outbreak of nodular hypertrophy of the ventriculus occurring among ducks at Bayon (Meurthe-et-Moselle) was diagnosed as due to *Acuaria uncinata*. Of 30 affected ducks, 12 died in a month. A pond to which they had access was thickly populated with *Daphnia*, nearly all of which contained nematode larvae 1–2 mm. long. The outbreak ceased when the surviving birds were treated with carbon tetrachloride and kept away from the infested water until this had been limed. E.M.S.

(202b) Thionol administered in powder form, for three consecutive days, at dose rates ranging from 0.05 gm. to 1.5 gm. per kg. body-weight, to pigeons infested with *Ascaridia columbae*, was without anthelmintic effect. In comparative tests, phenothiazine showed some action at 0.5 gm. per kg., and at 1.0 gm. and 1.5 gm. controlled the infection completely. No toxic effects of either drug were noted. E.M.S.

203—Bulletin Biologique de la France et de la Belgique.

- a. NIGON, V., 1947.—“Le déterminisme du sexe et la pseudogamie chez un nématode parthénogénétique, *Rhabditis monohystera* Bürschli. (Note préliminaire.)” 81 (1/2), 33–37.

(203a) Nigon has cultivated *Rhabditis monohystera* and studied the genetics of spermatogenesis, oogenesis and pseudogamy. The species normally produces more females than males but fertilization by a male is essential for the proper development of eggs, the latter process being either by the fusion of the male and female pronuclei or by pseudogamy in which there is failure of the two pronuclei to fuse. Chromosome arrangements and divisions during these gametic processes are figured and fully discussed. T.G.

204—Bulletin. New York State Flower Growers.

- *a. NEWHALL, A. G., 1947.—“Some volatile soil fumigants compared.” No. 20, pp. 1–2, 4.

205—Bulletin. Ontario Department of Agriculture.

- a. LAUGHLAND, J., 1947.—“The oat nematode.” No. 453, 12 pp.

(205a) Laughland gives a somewhat popular account of the cereal root eelworm, *Heterodera major* [referred to in this bulletin as *H. schachtii*]. It is primarily addressed to Ontario farmers and explains how the cysts and their contents may be recognized. The chief signs of attack and methods of control are discussed including crop rotations, weed control and the proper use of manures. The pamphlet is illustrated with a number of photographs. T.G.

206—Bulletin des Séances. Institut Royal Colonial Belge.

- a. SCHWETZ, J., 1947.—“ Sur l'état sanitaire de la région du Lubilash et tout spécialement sur la bilharziose dans cette région.—Rapport sur une reconnaissance effectuée en janvier-février 1946.” 18 (2), 519-577.

207—Bulletin de la Société Neuchâteloise des Sciences Naturelles.

- a. KENT, F.-H. N., 1947.—“ Études biochimiques sur les protéines des *Moniezia* parasites intestinaux du mouton.” 70, 85-108.

(207a) With double-distilled water and with saline solutions of different strengths and pH values, Kent was able to extract from defatted specimens of *Moniezia expansa*, proteins which proved to be almost entirely associated with relatively large amounts of other organic constituents [see also Helm. Abs., 16, No. 91c]. By fractionation he isolated a protein-bile acid aggregate which was found to be abundant in this worm, and also protein-glycogen aggregates, such as the one he names “baerine” which he found to be rich in glycogen (60%). By electrophoresis baerine and another protein-glycogen aggregate, “moniezine” (glycogen 11%), were obtained. In some fractions nucleoproteins were found, which were also in association with these non-protein organic substances. In all cases the proteins were found to be quite typical, yielding on hydrolysis many of the common amino-acids which were studied microchromatographically. It is thought to be highly probable that such association of proteins of *Moniezia* with glycogen or bile-acids confers on them special biochemical and physico-chemical properties which may prove to be connected with the behaviour of the worms in the alimentary tract of the host and especially with their resistance to digestion. In a similar study of a few specimens of *Taenia saginata* Kent found aggregates of the baerine type as well as protein-bile acid aggregates, but he did not get protein-glycogen aggregates from the saline extracts.

H.C.

208—Bulletin de la Société de Pathologie Exotique.

- a. MONTESTRUC, E., RAGUSIN, E. & CAUBET, P., 1947.—“Étiologie des dysenteries à la Martinique.” 40 (9/10), 327-332.
 b. COISNARD, J., 1947.—“A propos de la thérapeutique anthelminthique par la phénothiazine (thiodiphénylamine) et ses dérivés.” 40 (9/10), 343-348. [Discussion pp. 347-348.]
 c. CALLOT, J. & FORSTER, E., 1947.—“Kystes vermineux sous-cutanés.” 40 (9/10), 348-349.
 d. KERVRAN, P., 1947.—“Les hôtes intermédiaires des bilharzioses humaines à Bamako (Soudan français).” 40 (9/10), 349-352.
 e. KERVRAN, P., 1947.—“Contribution à l'étude de la faune malacologique du Soudan français.” 40 (9/10), 364-366.
 f. PICK, F. & DESCHIENS, R., 1947.—“Sur la morphologie et l'évolution des oeufs de *Watsonius watsoni* (Conyngham 1904) Stiles et Goldberger 1910.” 40 (11/12), 445-449.
 g. MANDOUL, R. & PAUTRIZEL, R., 1947.—“Étude expérimentale du transit intestinal des oeufs de douves.” 40 (11/12), 450-452.
 h. LE GAC, P., 1947.—“Toxicité des sels d'étain vis-à-vis des plathelminthes.” 40 (11/12), 452-455. [Discussion pp. 455-457.]

(208a) Of 17,201 stools examined in Martinique, 89 (0.5%) were dysenteric or dysenteriform. Of these 89, 15 (16.8%) were cases of schistosomiasis mansoni. Twelve cases of dysentery occurred among Senegalese troops shortly after their transfer to Martinique from French Guiana; ova of *S. mansoni* were found in faecal samples from seven of them.

E.M.S.

(208b) Coisnard summarizes the published work on the use of phenothiazine in Enterobius infections. He concludes that the therapeutic index (curative dose/toxic dose) in man is about 1/4 and recalls that for malachite green this is 1/30, for basic fuchsin it is 1/18, and for methyl violet it is 1/15. In normal subjects the dosage is 0.04 gm. to 0.06 gm. per kg. body-weight and the daily dose for adults of 60 kg. is 2.4 to 3.6 gm. for three to five days. It is however necessary to be very circumspect in administering phenothiazine to subjects suffering from anaemia and to those with liver and kidney disorders. Since in children the therapeutic index is in the neighbourhood of 1/2, the safety margin is very slight.

R.T.L.

(208c) Small fugitive subcutaneous nodules occurred on the outer side of the legs, chest, back, etc. in a person who had spent 6 years in Gabon, French Congo, where he had contracted loiasis. From one of these nodules a calcified nematode 1.5 cm. long was extracted but could not be identified.

R.T.L.

(208d) From the stream Farako which rises in the military camp of Kati and crosses part of the town of Bamako, the author collected more than 2,000 molluscs. The following, identified by Prof. Fischer, were examined for natural infections with trematodes:—*Limnaea natalensis* var. *undussumae*, *Physa tchadiensis*, *Physa strigosa* (= *Physopsis africana*) and *Planorbis adowensis*. White rats were submitted to infection by furcocercous cercariae naturally discharged from these molluscs, and attempts were made to infect the molluscs with *Schistosoma haematobium* and *S. mansoni*. *Limnaea natalensis* var. *undussumae* resisted infection with both schistosomes. 2.5% of *Physa tchadiensis* harboured schistosome cercariae as natural infections.

R.T.L.

(208e) The following fresh-water molluscs from French Sudan have been identified by Prof. Fischer: *Vivipara unicolor*, *Lanistes gribinguiensis* (?), *Cleopatra cyclostomoides*, *Limnaea natalensis* var. *undussumae*, *Physa strigosa* (the chief carrier at Bamako of *Schistosoma haematobium* and *S. mansoni*), *Physa tchadiensis* (a carrier of *S. haematobium* but not of *S. mansoni* at Bamako), *Physa* (*Pyrgophysa*) *dantzenbergi*, *Physa forskalii* and *Planorbis adowensis*. Kervran has verified at Bamako that *Planorbis adowensis* is a vector of *S. mansoni* but has not been able to obtain infection experimentally with *S. haematobium*.

R.T.L.

(208f) *Watsonius watsoni* has operculate, colourless eggs with a button-like thickening at the posterior end. The usual size is 115 μ by 71 μ . The miracidium develops in about 3 weeks. The host is not stated.

R.T.L.

(208g) The discovery of trematode eggs in the faeces of cases showing eosinophilia is not always evidence of parasitic infection, for *Dicrocoelium dentriticum* eggs are not infrequently found in human faeces in France, whereas actual human infections are very rare. Mandoul & Pautrizel have found that eggs of *D. dentriticum* and *Fasciola hepatica* obtained from abattoirs, when administered to human volunteers, appear in the faeces about 18 hours later and continue for about four days in diminishing numbers.

R.T.L.

(208h) Le Gac shows that Stannoxyd is an effective and innocuous anthelmintic against *Taenia saginata* and *T. solium*. In the discussion on this paper, Montel and Lavier add that they have used it successfully in human cases. The latter has also found it effective in dogs with *Dipylidium caninum*. Actual dosages are not given.

R.T.L.

209—Bulletin de la Société Zoologique de France.

- a. GALLIEN, L. & LE CALVEZ, J., 1947.—“Description de la larve d'*Octobothrium scombri* v. Ben. Hesse, trématode monogénétique marin.” 72 (2), 76–78.

(209a) Gallien & Le Calvez collected about 20 eggs of *Octobothrium scombri*, which hatched after about 12 days in sea water at 19°–20°C. The larva has a posterior adhesive organ consisting of two lateral pads, and these bear hooklets similar to those already described in larvae of *Dactylocotyle* and *Polystomum*.

E.M.S.

210—Bulletin Technique de la Protection des Végétaux.

- a. NIGON, V., 1947.—“Note sur les infestations de nématodes phytoparasites durant l'année 1946.” 1, 67–69.

(210a) Nigon has written a short note on the chief diseases of plants caused by nematodes reported in France during 1946. In the south, from the Maritime Alps to the eastern Pyrenees, root-knot (*Heterodera marioni*) was found on cyclamen, carnation, melon, egg-plant, tomato, salads and beet. Carnations are also subject to serious attack from *H. schachtii* at certain places on the coast in the Maritime Alps region. The foliar eelworm disease of chrysanthemums (*Aphelenchoides ritzema-bosi*) is widespread in the country generally. In Alsace a destructive disease of tobacco was found to be due to attacks of the stem eelworm, *Anguillulina dipsaci*.

T.G.

211—Bulletin of the United States Army Medical Department.

- a. DAVIS, W. A. & CLELAND, R. R., 1947.—“Trichinosis in prisoners of war.” 7 (11), 973-976.

(211a) An outbreak of trichinosis among German prisoners-of-war at Camp Atterbury, Indiana in 1945 was traced to the consumption, contrary to official instructions, of uncooked bacon and pork. R.T.L.

212—California Citrograph.

- a. WHITE, F. A., 1947.—“Notes on citrus nematodes.” 32 (7), 312-313.
b. FOOTE, F. J. & GOWANS, K. D., 1947.—“Citrus nematode.” 32 (12), 522-523, 540-541.

(212a) White sets out briefly some of the facts known about the citrus root nematode, *Tylenchulus semi-penetrans*, as a pest of various kinds of citrus crops in California. He describes the life-history of the parasite and its effect on the feeding roots, mentioning too the fact that living larvae of the nematode have been recovered from soil three years after citrus trees had been uprooted. He also discusses some of the difficulties involved in attempting to control the pest by soil fumigation. T.G.

(212b) Foote & Gowans discuss the citrus nematode, *Tylenchulus semi-penetrans*, in relation to unthriftiness in citrus trees. They conclude, from their observations on the numbers of the parasite associated with affected roots, that it is a serious hindrance to the full growth of the host. Removal of infested trees, followed by fumigation of the soil prior to replanting with nematode-free stock, appears to be the only remedy at present available. They show that soil not previously planted with citrus grew lemon trees at a faster rate than did the same soil after growing citrus for about 40 years and then being fumigated before planting. The article is illustrated with a number of photographs of citrus trees and roots. T.G.

213—Canadian Fish Culturist.

- a. LACHANCE, F. DE S., 1947.—“Black spot disease of bass. Part 1. Distribution of the disease.” 1 (2), 16-21.

(213a) The black spots which occur under the scales and in the flesh of the small-mouthed black bass, *Micropterus dolomieu*, are encysted metacercariae of *Uvulifer ambloplitis*, a trematode living in the gut of the kingfisher, *Streptoceryle alcyon*. In Canada its molluscan intermediary is *Helisoma anceps*. Lachance lists the counties and townships visited in the Province of Quebec and records the presence or absence of the condition in the local bass. R.T.L.

214—Canadian Medical Association Journal.

- a. STARKEY, H. & POOLE, J., 1947.—“Survey of intestinal parasites in repatriated prisoners of war from Hong Kong.” 57 (4), 377-379.

215—Časopis Československých Veterinářů.

- a. TYKAČ, B., 1947.—“Nakažlivá obrna a parazitární zamoření vepřů.” 2 (7), 160-163. [In Czech.]
b. FREUND, L., 1947.—“Therapie invaze střevních červů.” 2 (8), 192-193. [In Czech.]

(215a) Tykač found that out of 135 farms where porcine infectious paralysis occurred, 85.2% carried parasitic infestations chiefly with *Ascaris lumbricoides*. Of 58 farms where there was no infectious paralysis less than half had pigs with *Ascaris*. The author considers that there may be a possibility that *A. lumbricoides* is transmitting the virus of infectious paralysis, and recommends prophylactic measures against helminths in pigs. Other species found were *Oesophagostomum dentatum* and *Trichuris trichiura*. C.R.

(215b) Freund gives a list of parasites of horses, cattle, pigs and rabbits and their treatment. C.R.

216—Chinese Medical Journal. Shanghai.

- a. HSU, K. C., 1947.—“A survey of human intestinal parasites in Chengtu.” 65 (3/4), 85–90.
- b. KHAW, O.-K., 1947.—“An investigation on schistosomiasis.” 65 (5/6), 129–132. [Chinese summary p. 132.]
- c. KHOO, F. Y. & CHIANG, H. S., 1947.—“Hookworm disease showing abnormal roentgenologic small intestine changes. Three case reports.” 65 (9/10), 349–356.

(216a) In Chengtu, Szechwan, China, the helminth incidence in the servant class was found to be:—*Ascaris lumbricoides* 68.7%, *Trichuris trichiura* 33.6%, hookworm 17.3%, *Clonorchis sinensis* 1.9%. In school children the infection rate was *Ascaris* 85.3%, *Trichuris* 8.2%, hookworm 0.4%. Hymenolepis was noticed once in a child, the first record for Szechwan. In first-year college students the incidence was *Ascaris* 46.8%, *Trichuris* 2%, hookworm and *Clonorchis* each 0.5%. The egg-counts of *Ascaris* varied from 220 to 340,000 per c.c. and those of hookworm ranged from 200 to 19,600 per c.c. *Schistosoma japonicum* was not observed.

R.T.L.

(216b) Khaw discusses the possibility of the introduction into India of schistosome infections by West African troops. No infections could be induced experimentally in local molluscs nor were there any natural infections. No cases occurred in the local population living in close contact with the African troops.

R.T.L.

(216c) Khoo & Chiang report abnormal roentgenological findings in the small intestine in two cases of hookworm disease. These changes are not specific but may be seen in many unrelated conditions.

R.T.L.

217—Chronicle of the World Health Organization.

- a. ANON, 1947.—“Schistosomiasis.” 1 (5/6), 82–83.
- b. ANON, 1947.—“Schistosomiasis.” [Fourth Session of the Interim Commission, World Health Organization, Geneva, August 30 to September 13, 1947.] 1 (9), 127–128.

(217a) The member for Egypt on the Interim Commission of the World Health Organization (WHO) draws attention to the large number of victims which schistosomiasis claims in hot climates and especially in Egypt. He considers that the World Health Assembly should, at its very first meeting, discuss means to diminish its frequency, and has undertaken to prepare a detailed statement on the approach to this problem.

R.T.L.

(217b) The view that human and animal schistosomiasis could be eliminated only by energetic international action was expressed by Dr. Aly Tewfik Shousha Pasha, representative for Egypt, in a memorandum presented at the 4th session of the Interim Commission of the World Health Organization.

R.T.L.

218—Circular. Colorado A. & M. College Extension Service.

- a. GOODMAN, A. A., 1947.—“Sodium fluoride for removing large roundworms from swine.” No. 149-A, 4 pp.

219—Circular. Oklahoma A. & M. College Extension Service.

- a. KYD, S., 1947.—“Keeping hogs free of parasites.” No. 465, 4 pp.

220—Clinica Veterinaria. Milano.

- a. ARRU, C., 1947.—“Caso di cisticercosi assai diffusa in un suino.” 70, 53.
- b. POPA, M., 1947.—“Sopra una epizoozia di oftalmia verminosa delle bovine in Moldavia, Bessarabia e Transnistria.” 70, 98–103.
- c. ROETTI, C., 1947.—“Due elminti del genere *Cylindropharynx* parassiti dell'asino e del mulo. —Nuove specie.” 70, 170–175. [English & French summaries p. 175.]

(220b) *Thelazia rhodesii* affected 35–60% of 523 bovines examined in pastured herds of the commune Muntanii de Sus, district of Vaslui, Rumania, in the spring of 1941 and 1942. In other communes of the district, 40–50% of the animals showed ophthalmia and the parasite could be found in 60%. Altogether over 2,000 animals were affected out of 4,000 examined.

The parasite was also seen in several areas near Jassy, and Popa considers that it may be widespread throughout Moldavia. There is no mention of its occurrence in Bessarabia or Transylvania. E.M.S.

(220c) Roetti has found two species of *Cylindropharynx* to be very common in donkeys and less common in mules in Addis Ababa. One species is similar to *C. brevicauda* but has both buccal capsule and oesophagus relatively shorter and broader; this is designated *C. aethiopica* n.sp. The second species, resembling *C. longicauda* but much larger and with the oesophagus longer in relation to the length of the buccal capsule, is named *C. asini* n.sp. E.M.S.

221—Clinical Proceedings. Journal of the Cape Town Post-Graduate Medical Association.

- a. RITCHKEN, J. & KANTOR, F., 1947.—“Herpes zoster. A toxic manifestation resulting from the therapeutic administration of antimony and potassium tartrate in the treatment of schistosomiasis.” 6 (4), 125–129.

222—Comptes Rendus des Séances de la Société de Biologie. Paris.

- a. PICK, F., 1947.—“Sur la différenciation des membranes des oeufs d'*Ascaris megalocephala*.” 141 (19/20), 983–986.
- b. DESCHIENS, R. & POIRIER, M., 1947.—“L'intoxication expérimentale du cobaye par l'extrait trichloracétique de *Taenia saginata*.” 141 (19/20), 988–989.
- c. PAUTRIZEL, R. & SARREAU, C., 1947.—“Fractionnement de l'antigène hydatique et intradermoréaction de Casoni.” 141 (19/20), 1061–1062.
- d. DESCHIENS, R. & POIRIER, M., 1947.—“L'intoxication expérimentale par le liquide hydatique.” 141 (23/24), 1161–1163.

(222a) When eggs of *Parascaris equorum* are placed on 5% agar-agar, the external membrane is readily removed. The intermediate membrane, which is chitinous, consists of at least three layers and these undergo changes which render it supple before the maturation of the enclosed larva. The internal membrane is broken by the active movements of the larva in normal hatching. It stains blue with iodine and shows other colour reactions usually associated with starch, but is not altered by treatment with the enzyme amylase. P.A.C.

(222b) Guinea-pigs were given intramuscular injections of a trichloroacetic acid extract of *Taenia saginata*. There was a rapid bronchial spasm followed by regular loss of weight. The polymorphonuclear leucocyte count increased actually and relatively. One animal showed a progressive anaemia with anisocytosis and poikilocytosis. The lungs showed some serous exudate and haemorrhage. There was venous stasis in the liver and congestion in the kidneys, with oedema and degeneration of the glomeruli. All these signs suggest a toxic fraction in the extract which is capable of forming or releasing histamine. The concentration of toxic or toxigenic substances in a *Taenia* extract, however, is much lower than in a similar extract of *Ascaris*. P.A.C.

(222c) Pautrizel & Sarreau have made three fractions from hydatid scolices, all of which proved to be successful antigens when used for intradermal tests on known carriers of cysts. The first was a glycolipoid complex prepared by trichloroacetic acid extraction. The second antigen was a glycoprotein complex made by precipitation with absolute alcohol and ether. The third had been made from this latter one by precipitating the proteins with phosphotungstic acid and subsequent dialysis, after which the “polyholoside” [? polysaccharide] fraction was precipitated with absolute alcohol. P.A.C.

(222d) Single or double intracardiac injections of hydatid fluid produced neither acute intoxication nor anaphylaxis in guinea-pigs. Repeated intramuscular injections resulted in loss of weight, bronchial spasm and dyspnoea. There was severe pulmonary oedema and less important changes in kidneys and liver; many animals died. Hydatid fluid is therefore very toxic apart from its anaphylactic properties, and can produce a subacute and chronic intoxication. P.A.C.

223—Cornell Extension Bulletin. New York State College of Agriculture.

- a. CUNNINGHAM, H. S. & MAI, W. F., 1947.—“Nematodes parasitic on the Irish potato.” No. 712, 24 pp.

(223a) Cunningham & Mai have written a well illustrated bulletin on the nematodes parasitic on potatoes in New York State. The chief symptoms of attack are described, the characters for identification are indicated and control measures are briefly dealt with for the following species of nematodes :—*Heterodera marioni*, *H. rostochiensis*, *Ditylenchus destructor* and *Pratylenchus scribneri*. For purposes of comparison with *H. rostochiensis* a short account and illustrations are given of a species of *Heterodera* which sometimes occurs on the roots of *Polygonum* spp. (“smart weeds”) in potato fields in eastern U.S.A. T.G.

224—Discovery. Norwich.

- a. LAPAGE, G., 1947.—“Man against ‘worms’.” 8 (12), 377–379.

225—Entomologiste. Paris.

- a. PAULIAN, R., 1947.—“Les gordiens, vers parasites d’insectes.” 3 (3), 131–133.

(225a) Paulian draws the attention of entomologists to the need for further knowledge of the species of *Gordius* and of their insect hosts in Europe. R.T.L.

226—Extension Circular. Ontario Department of Agriculture.

- a. KINGSCOTE, A. A., 1947.—“The control of sheep stomach and nodular worms.” No. 74, 4 pp.

227—Farmers’ Bulletin. U.S. Department of Agriculture.

- a. WALKER, J. C., 1947.—“Onion diseases and their control.” No. 1060, 26 pp. [Revised edition.]

(227a) Walker gives an account of most of the diseases affecting onions in the field as a growing crop and during storage of the lifted bulbs. Amongst the numerous disease-producing organisms two eelworms receive brief notice, viz., *Heterodera marioni* causing root galls, and *Ditylenchus dipsaci* causing “bloat” symptoms in the bulb. Soil fumigation is recommended against the latter pest. T.G.

228—Farming in South Africa.

- a. DU TOIT, P. J., 1947.—“Safeguarding the Union’s livestock industry.” [Report of the Division of Veterinary Services for the year ended 31st August 1947.] 22 (261), 973–996, 1158.
b. NAUDE, T. J., 1947.—“Control of insect pests.” [Report of Division of Entomology for the year ended 31st August 1947.] 22 (261), 1054–1072.

(228a) At Onderstepoort the research programme in helminthology is largely concerned with the effect of nutrition on susceptibility to worm infestation and the effect of helminths at different levels of host nutrition. A modification in the method of preparation of “Tetram” has rendered this more stable. R.T.L.

(228b) For the control of *Heterodera marioni* in seed-beds, silver chloride dissolved in sodium cyanide was disappointing, chloropicrin was good, and carbon bisulphide and D-D mixture were each excellent. At 400 lb. per acre and upward, D-D mixture was found to be promising against *H. marioni* in vegetables but tended to be uneconomical except for seed-beds. Trials with heavy applications of organic matter showed no decrease in eelworm infestations. The occurrence of *Pratylenchus pratensis*, found in potatoes near Witbank, Transvaal, is a first record for this species in South Africa. R.T.L.

229—Florida Grower.

- *a. BICKERTON, J., 1947.—“Comparing soil fumigants.” 55 (7), 8, 16.

230—Gaceta Veterinaria. Buenos Aires.

- a. ROVEDA, R. & RINGUELET, R., 1947.—“Lista de los parásitos de los animales domésticos en la Argentina.” 9 (46), 67-78.
b. FRIDKIN, A., 1947.—“*Thysanosoma actinioides* (Diesing, 1835) tenia festoneada.” 9 (49), 227-243.

(230a) The parasites, including the helminths, of each of the domestic animal species are listed under the name of the host, and an indication is given of geographical distribution in Argentina by type of country, with a key map. Roveda & Ringuelet have confirmed the occurrence of various species not previously reported in Argentina. E.M.S.

(230b) *Thysanosoma actinioides* was found in 24.77% of the livers of 6,022 sheep examined in the municipal abattoir of Patagones, province of Buenos Aires. The probably much higher rate of intestinal infestation could not be determined. The disease is said to be spreading and increasing rapidly throughout Argentina. While not itself a cause of death, it offers a portal of entry for various infections, in particular clostridia of the “gas gangrene” type. Treatment with carbon tetrachloride and copper and nicotine sulphates is described. E.M.S.

231—Harper Adams Utility Poultry Journal.

- a. TEMPERTON, H., DUDLEY, F. J., BYTHELL, D. W. P. & PARKER, W. H., 1947.—“The control of blackhead (infectious enterohepatitis) in turkeys. Part 1—A review of the literature and an account of preliminary investigations.” 32 (2), 42-51.

(231a) Field experiments are reported on the control of blackhead in turkeys at the National Institute of Poultry Husbandry. These depended on naturally acquired infection, and the incidence was too low to justify conclusions on the value of sulphamezathine or neorsphenamine. The inclusion of phenothiazine in the diet from hatching to marketing, at the rate of 2,000 gm. per ton of mash, was ineffective in preventing blackhead. R.T.L.

232—Hassadeh.

- a. FLASHKES, B., 1947.—“Phenothiazine—a remedy against worms.” 27 (10), 502-503. [In Hebrew.]

233—Hawaii Medical Journal.

- a. GILES, F. L., 1947.—“Echinococcus cyst of the lung.” 6 (6), 405-409.

234—Hospital. Rio de Janeiro.

- a. RODRIGUES DA SILVA, J. & COSTA, N., 1947.—“A biópsia retal no diagnóstico e no controle da eficiência terapêutica da esquistosomíase de Manson.” 32 (2), 219-233. [English summary pp. 231-232.]

(234a) Rectal biopsy used as a method of diagnosis of schistosomiasis mansoni gave 13 positive results among 100 patients. Only four out of these 13 gave microscopical evidence of eggs in the faeces. R.T.L.

235—Indian Journal of Medical Sciences.

- a. MCGILL, R. G., 1947.—“Cysticercosis resembling a myopathy.” 1 (3), 109-114.

(235a) Two cases of cysticerciasis cellulosa in Indians are described. In one there was almost certainly a cyst in the left frontal area with headache, changed personality, right grasp reflex and a right Babinski response, hilariousness, joking, etc., with a raised cell count and protein in the cerebrospinal fluid. In the other case the body was studded with several hundred small nodules. The whole musculature of the calf was replaced by a grape-like mass containing hundreds of cysts. No cysts were revealed by X-ray of the skull. R.T.L.

236—Indian Medical Gazette.

- a. RAI, B. B., 1947.—“Some misleading cases of helminthic infestation.” 82 (9), 538–539.
- b. CHAUDHURI, R. N., 1947.—“Notes on some remedies. XII. Antimony and its derivatives (part III).” 82 (9), 541–542.

(236a) Infestations with *Ascaris lumbricoides* and tapeworm are very common in Rohilkhand, U.P., India, mostly in children, particularly those of Mohammedans, between the ages of 2–13 years. These infestations, which are seldom diagnosed in ordinary practice, are stated to be responsible for a very high mortality. R.T.L.

(236b) The dosage and treatment of schistosome infections by tartar emetic, anthiomaline and neoantimosan (fouadin) are briefly summarized. R.T.L.

237—Indian Medical Journal.

- a. DE, R. N., 1947.—“Few lines on thread worm infection.” 41 (9), 165–166.

(237a) For the treatment of enterobiasis, enemata of 4–8 oz. of saline (2 drams to a pint) are more effective than quassia infusions. Gentian violet should be given simultaneously. Purgatives, preferably saline, should not be used except in the quiescent stage. 30% mercury ointment gives temporary relief from itching. The juice of Kalmegh leaves or “Bhatpata” is a native remedy but of this the author has no experience. R.T.L.

238—Instituto de Economía y Legislación Rural. Facultad de Agronomía y Veterinaria. Universidad de Buenos Aires.

- a. SERRES, J. R., 1947.—“Zoonosis (hydatidosis—rabia—tuberculosis).” 7 (2), 242 pp.

239—Instituto de Sanidad Vegetal, Ministerio de Agricultura de la Nación. Buenos Aires.

- a. MARCHIONATTO, J. B., 1947.—“La podredumbre de la raicilla de los citrus provocada por el *Tylenchulus semipenetrans*.” Serie A, Año III, No. 35, 6 pp.

(239a) Marchionatto discusses the rootlet rot of citrus provoked by the nematode, *Tylenchulus semi-penetrans*. He gives a coloured illustration of leaf symptoms, including reduction in size and marked chlorosis, induced by an experimental infestation of the parasite, a large healthy leaf being figured for comparison. He draws attention to the differences between “quick decline” of orange bushes and the symptoms caused by *T. semi-penetrans*, and finally emphasizes the importance of the latter as a root parasite. T.G.

240—Joint Publication. Imperial Agricultural Bureaux.

- a. EDWARDS, J. T., 1947.—“Phenothiazine (thiodiphenylamine) in veterinary medicine. A review of the literature of 1942–46.” No. 12, pp. 5–22.
- b. IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY, 1947.—“Bibliography of phenothiazine as an anthelmintic, 1942–46.” No. 12, pp. 23–35.

(240a) Edwards reviews the use of phenothiazine in veterinary medicine from papers published during 1942 to 1946, supplementing the earlier review by Davey & Innes [see Helm. Abs., 11, No. 82a]. The information is marshalled under the headings pharmacology, toxicology, and clinical application (including technique), the last being detailed under host. E.M.S.

(240b) The Imperial Bureau of Agricultural Parasitology (Helminthology) contributes a bibliography which covers the literature of 1942 to 1946, with four earlier references omitted from their “Bibliography of Phenothiazine as an Anthelmintic” (1942). Articles cited by Edwards in his review [see preceding abstract] are marked, and references are given to abstracts which have already appeared in *Helminthological Abstracts* or in the *Veterinary Bulletin*. E.M.S.

241—Journal of Allergy.

- a. DAVIDSON, A. G., BARON, B. & WALZER, M., 1947.—“Factors influencing reagin formation in experimental human sensitization to *Ascaris lumbricoides* antigen. I. Influence of chronic infection (tuberculosis) on rate of sensitization.” 18 (6), 359–368.
- b. KAILIN, E. W., DAVIDSON, A. G. & WALZER, M., 1947.—“Factors influencing reagin formation in experimental human sensitization to *Ascaris lumbricoides* antigen. II. The influence of sex as a factor in rate of sensitization.” 18 (6), 369–372.
- c. KAILIN, E. W., DAVIDSON, A. G. & WALZER, M., 1947.—“Factors influencing reagin formation in experimental human sensitization to *Ascaris lumbricoides* antigen. III. The influence of race as a factor in rate of sensitization with further observations on the sex factor.” 18 (6), 373–380. [Discussion pp. 380–381.]

(241a) Davidson et al. were able to sensitize persons reacting negatively to *Ascaris lumbricoides* antigen, by means of repeated intracutaneous injections. Some were sensitized as early as the 14th day, and by the 11th week 92% were reacting. Chronic tuberculosis had no effect on the rate of sensitization. The antibody producing the immediate skin reaction was the atopic reagin. P.A.C.

(241b, 241c) Kailin et al. show that the speed with which patients can be sensitized to *Ascaris lumbricoides* antigen may vary according to the sex and race of the patient. Males tend to react more quickly than females and negroes more quickly than white persons. P.A.C.

242—Journal of the American Medical Association.

- a. SANTIAGO-STEVENSON, D., OLIVER-GONZÁLEZ, J. & HEWITT, R. I., 1947.—“Treatment of filariasis bancrofti with 1-diethylcarbaryl-4-methylpiperazine hydrochloride (‘Hetrazan’).” 135 (11), 708–712.

(242a) Twenty-six persons harbouring microfilariae of *Wuchereria bancrofti* in their blood were given oral treatment with “Hetrazan” (1-diethylcarbaryl-4-methylpiperazine hydrochloride). The doses varied from 0.5–2.0 mg. per kg. body-weight and were given three times daily over periods varying from 3–22 days. In every instance the number of microfilariae was markedly reduced by the second day of treatment, and in 34.6% no microfilariae were observed. In 50% of the treated persons no microfilariae were observed 8–83 days after treatment. There was some evidence that the drug had acted upon the adult worms. Severe toxic reactions were not observed in any of the patients. J.J.C.B.

243—Journal of Animal Science.

- a. EMIK, L. O. & GREGORY, P. W., 1947.—“The effects of environmental and hereditary factors on trichostrongylid worm infestation on sheep.” [Abstract of paper to be presented at the 39th Annual Meeting of the American Society of Animal Production, Chicago, November 28 and 29, 1947.] 6 (4), 477–478.
- b. ELMSLIE, W. P., CALDWELL, P. & STURDY, R. A., 1947.—“Soluble fluorides as swine anthelmintics.” [Abstract of paper to be presented at the 39th Annual Meeting of the American Society of Animal Production, Chicago, November 28 and 29, 1947.] 6 (4), 480.
- c. WEIR, W. C., BAHLER, T. L., BADR, M. F., POPE, A. L., HERRICK, C. A., BOHSTEDT, G. & PHILLIPS, P. H., 1947.—“The effect of hemopoietic dietary factors upon internal parasite infection in sheep.” [Abstract of paper to be presented at the 39th Annual Meeting of the American Society of Animal Production, Chicago, November 28 and 29, 1947.] 6 (4), 492.

(243a) An attempt was made to analyse statistically the effects of environmental factors on, and the heritability of resistance to, trichostrongylid worms in sheep. [The abstract given cannot be satisfactorily summarized.] E.M.S.

(243b) The use of a saline laxative in conjunction with a soluble fluoride increases the efficiency and also the safety of this treatment for roundworms in pigs. The use of calcium-containing minerals or of milk in the pig’s diet during treatment decreases efficiency. Permitting access to certain types of pasture also lowers effectiveness to some extent. E.M.S.

(243c) Lambs born of ewes fed a basal diet of mixed legume and grass hay, maize, and iodized salt, with or without supplements of bone meal, soybean oil meal and mineralized salt, were drenched at two months of age with 4,000 larvae of *Haemonchus contortus*, and six weeks later with an additional 15,000 to 40,000 larvae. Results indicated that lambs receiving mineralized salt (cobalt, copper and manganese sulphates, iron and potassium iodide) passed worm eggs earlier and had a heavier worm burden. The higher protein level appeared to exert a protective effect.

E.M.S.

244—Journal of the Association of Medical Women in India.

- a. BULSARA, S. N., 1947.—“An unusual case of tapeworm infestation.” 35 (2), 44-45.

245—Journal of the Chemical Society. London.

- a. MARRIAN, D. H., RUSSELL, P. B., TODD, A. R. & WARING, W. S., 1947.—“The structure of anhydrotetronic acid.” Year 1947, pp. 1365-1369.

(245a) Anhydrotetronic acid possesses the property of releasing the larvae of *Heterodera rostochiensis* from the cysts. Its chemical structure is described.

R.T.L.

246—Journal of Comparative Pathology and Therapeutics.

- a. VAN SOMEREN, V. D., 1947.—“A sedimentation method for the detection and counting of *Fasciola* eggs in faeces.” 57 (3), 240-244.

(246a) Van Someren describes an apparatus for concentrating *Fasciola* and paramphistome eggs from faeces, which greatly aids detection and counting. The principle employed is sedimentation in a tube at least 4½ feet high, which incorporates a specially constructed tap to deliver the sediment in small quantities.

J.W.G.L.

247—Journal of the Department of Agriculture. Victoria.

- a. RUSHFORD, B. H., 1947.—“Sodium fluoride for worms in pigs.” 45 (11), 502.

(247a) *Ascaris lumbricoides* infection is probably the most serious pest encountered in pig farming in Victoria. Sodium fluoride is recommended as a cheap and efficient cure. Pigs reared for bacon or pork should be treated twice during their lifetime. A table gives the dosage in grammes, based on weight ranges of the pigs or on number of pigs to 1 oz. of the anthelmintic. Vigorous application of hygienic methods must also be carried out.

R.T.L.

248—Journal of the Department of Agriculture. Western Australia.

- a. TOOP, C. R., 1947.—“Sodium fluoride for the treatment of worms in pigs.” 24 (3), 216-219.

(248a) The treatment of all litters with sodium fluoride two to three weeks after weaning has been adopted at the Muresk Agricultural College in Western Australia, as a routine practice for the control of *Ascaris lumbricoides* in pigs. The drug was given in a mixture of crushed wheat and meat-meal fed dry.

R.T.L.

249—Journal of Economic Entomology.

- a. SCHMIDT, C. T., 1947.—“Dispersion of fumigants through soil.” 40 (6), 829-837.

(249a) Schmidt has investigated the dispersion of chloropicrin and of D-D mixture through soil, making use of the rice weevil, *Sitophilus oryza*, as a test animal. Knowing the definite relationship between percentage mortality of the weevil, exposure time, and vapour concentration, it is possible to calculate the third from measurements of the first two. Weevils were exposed for five hours in wire cages at 6-in., 12-in. and 18-in. distances laterally and vertically from the injection point, either 6 in. or 12 in. deep, in soils of low, medium and high moisture. The vapours of both fumigants rise initially to high concentrations, chloropicrin showing better dispersion and longer retention than D-D. Dispersion is most rapid, and retention time is shortest, in soil of medium moisture; wet soils show very poor concentrations at the surface. Increased depth of injection increases retention time but reduces surface efficacy. Dosage rate is probably not an important factor once the optimum has been reached.

B.G.P.

250—Journal of the Entomological Society of Southern Africa.

- a. MUSPRATT, J., 1947.—“The laboratory culture of a nematode parasite of mosquito larvae.” 10 (1), 131–132.

(250a) When mermithid larvae which had emerged from naturally parasitized *Aedes* larvae were collected in a screw-capped jar containing sandy soil and water, they immediately burrowed into the sand and became dormant. The water was then decanted, and the sand allowed to become almost dry. Twelve months later part of the sand was transferred to another jar containing water, and newly hatched larvae of laboratory-reared *Aedes aegypti* were added. Within 24 hours the mermithid larvae invaded the *Aedes* larvae and their larvae emerged in 10 to 14 days. The adult nematodes apparently die after laying eggs in the nearly dry sand.

R.T.L.

251—Journal of Experimental Biology.

- a. SMYTH, J. D., 1947.—“Studies on tapeworm physiology. III. Aseptic cultivation of larval *Diphyllobothriidae* *in vitro*.” 24 (3/4), 374–386.

(251a) Smyth describes the successful aseptic removal of plerocercoids of the family *Diphyllobothriidae* from the body cavity of *Gasterosteus aculeatus* and their cultivation in various liquid nutrient media and saline media under sterile conditions at 40°C. The most successful medium was peptone-broth+10% horse serum, in which the larvae were kept alive for 10 days. But unlike the larvae of *Ligula intestinalis* and *Schistocephalus solidus* [see Helm. Abs., 16, No. 40k; *J. exp. Biol.*, 1946, 23, 47–70], they did not exhibit further growth or development beyond the primitive larval stage. Segmentations and elongation of the strobila occurred in some cases. The larvae became firmly attached to the glass of the culture tube by means of their bothridia. Fresh larvae were rich in glycogen but almost fat-free, but the presence of large quantities of fat in larvae after cultivation indicates that fat is a by-product of metabolism.

J.J.C.B.

252—Journal of Experimental Medicine.

- a. SYVERTON, J. T., MCCOY, O. R. & KOOMEN, Jr., J., 1947.—“The transmission of the virus of lymphocytic choriomeningitis by *Trichinella spiralis*.” 85 (6), 759–769.

(252a) *Trichinella spiralis* larvae migrating through the tissues of a guinea-pig currently infected with lymphocytic choriomeningitis acquire the virus and can pass it on to another subject. Triturated dead larvae also transmitted the virus, which was actually harboured within the tissues of the worms.

P.A.C.

253—Journal of the Indian Army Medical Corps.

- a. KALRA, S. L., 1947.—“Addu Atoll—(Maldiv Islands) its people and its important diseases.” 3 (3), 137–141.

(253a) Kalra includes filariasis among the important diseases of Addu Atoll in the Maldiv Islands. The carriers are *Culex fatigans* and *C. sitiens*. In 1926 a hitherto uninhabited island (Willingili) was selected for the segregation of a colony of 131 cases of elephantiasis, although early cases (of which a few occurred in every village) and scrotal infections were not segregated. He remarks on the hardship and futility of this measure.

R.T.L.

254—Journal of the Indian Medical Association.

- a. BASU, S. N., 1947.—“Chronic intestinal obstruction due to ascariasis.” 16 (11), 390–391.

255—Journal of Infectious Diseases.

- a. WHARTON, D. R. A., 1947.—“Pathological changes in natural and experimental filariasis in the cotton rat.” 80 (3), 307–318.
b. WHARTON, D. R. A., CUERVO, C. & MOYER, A. W., 1947.—“Skin reactions in sensitized, infected and normal rabbits with filarial and other nematode antigens.” 81 (3), 254–260.

(255a) *Litomosoides carinii*, which lives in the pleural cavity of the cotton rat, gives rise to reactions similar to those produced by *Wuchereria bancrofti* in the lymphatics in man. An

initial allergic response is followed by granulation and fibrosis. There are plate-like thickenings or papillary nodules on the parietal and visceral pleura and enlargement of their lymphatics. The spleen becomes enlarged and palpable showing follicular hyperplasia. The reactions are attributed to excretions of the living adult worms. The circulating microfilariae have little, if any, effect.

R.T.L.

(255b) Rabbits were sensitized with saline extracts of *Ascaris*, *Dirofilaria immitis* and *Litomosoides carinii*, and by infection with *Trichinella*. When these rabbits were tested intradermally the various antigens reacted specifically, except in the trichinous rabbits where all the antigens reacted strongly; there was evidence of reaction to *Ascaris* in some animals not sensitized to *Ascaris*. It is suggested that these anomalous reactions may represent reactions between host tissue antigens (derived from the intestines of the nematodes used) and the natural tissue antibody of the rabbit. It is concluded that in skin tests for filariasis, cross-reactions with intestinal helminths do not ordinarily occur.

E.M.S.

256—Journal of Laboratory and Clinical Medicine.

- a. HEWITT, R. I., WALLACE, W. S., WHITE, E. & SUBBAROW, Y., 1947.—“Experimental chemotherapy of filariasis. I. Experimental methods for testing drugs against naturally acquired filarial infections in cotton rats and dogs.” 32 (11), 1293–1303.
- b. HEWITT, R. I., WHITE, E., WALLACE, W. S., STEWART, H. W., KUSHNER, S. & SUBBAROW, Y., 1947.—“Experimental chemotherapy of filariasis. II. Effect of piperazine derivatives against naturally acquired filarial infections in cotton rats and dogs.” 32 (11), 1304–1313.
- c. HEWITT, R. I., KUSHNER, S., STEWART, H. W., WHITE, E., WALLACE, W. S. & SUBBAROW, Y., 1947.—“Experimental chemotherapy of filariasis. III. Effect of 1-diethylcarbamy-4-methylpiperazine hydrochloride against naturally acquired filarial infections in cotton rats and dogs.” 32 (11), 1314–1329.

(256a) The methods employed in the routine testing of non-metallic organic compounds against *Dirofilaria immitis* and *Litomosoides carinii*, as natural infections in the dog and cotton rat respectively, are described. These include a method of estimating fluctuations in the numbers of microfilariae in cotton rats over a number of weeks, which revealed a marked increase in their numbers; in only one cotton rat out of 65 did the microfilarial count fall to zero. Of 65 rats examined *post mortem*, nine showed a small number of dead adult worms and none showed these in large numbers. Compounds were given orally or intraperitoneally to cotton rats, according to their solubility, in experimental dosages which determined the frequency of subsequent treatment. With dogs, heavily infected animals were found to be unsuitable since large numbers of worms, if killed suddenly and simultaneously, might kill the dog by embolus formation in the pulmonary artery. On the other hand, dogs or cotton rats with low initial microfilarial counts are also unsuitable.

J.J.C.B.

(256b) Of several members of the piperazine group administered orally or intraperitoneally against filariasis in cotton rats, compound 180-C (1-carbethoxy-4-methylpiperazine hydrochloride) was consistently effective in reducing the microfilarial counts in well tolerated doses; in dogs, however, the dosages which reduced the microfilarial count had adverse effects on the dogs themselves. Compound 84-L (1-diethylcarbamy-4-methylpiperazine hydrochloride) proved more effective and reduced the microfilarial count in doses as low as 3 mg. per kg. body-weight in cotton rats and had no toxic effect on dogs in therapeutic doses. Moreover, frequent administration of compound 84-L [= Hetrazan] caused the death of a large proportion of adult worms in cotton rats.

J.J.C.B.

(256c) Two hundred and twelve cotton rats and 25 dogs were used in testing compound 84-L [see preceding abstract] against both microfilariae and adult worms. Oral or intraperitoneal treatment of cotton rats, at doses ranging from 3 mg. to 100 mg. per kg. body-weight, caused a sudden drop within 24 hours in the microfilarial count, which became negative or remained very low throughout the duration of treatment. The compound appeared to act directly on the microfilariae in the blood. In dogs the rate of disappearance of the microfilariae was less rapid but over 90% generally disappeared in 1–2 weeks. The effect of the

compound on adult filariae in cotton rats varied according to the amount of drug given, the frequency of the dosage, and the number of days elapsing between cessation of treatment and autopsy. In general, a dosage of less than 10 mg. per kg. body-weight killed fewer adult worms than did dosages of 10 mg. or more per kg., and treatment with 10 mg. per kg. three times daily gave more consistent results than twice daily. Usually the longer the period between cessation of treatment and autopsy the fewer live worms were found on autopsy. Treatment of dogs orally and intraperitoneally with compound 84-L was encouraging in that doses necessary to affect the microfilariae, and in some cases adult worms also, did not produce signs of severe toxicity. J.J.C.B.

257—Journal of Morphology.

- a. AXMANN, M. C., 1947.—“Morphological studies on glycogen deposition in schistosomes and other flukes.” 80 (3), 321-343.

(257a) Glycogen stored in adult flukes varies considerably with respect to amount and in the size of the granules deposited in different tissues. Large amounts occur in the suckers of all the species examined with the exception of female schistosomes. Developing ova are free from glycogen. The glycogen of uterine eggs of schistosomes is diffuse and occasionally composed of fine granules. In the embryos of *Fasciola*, *Fascioloides* and *Polystomoidella* this reserve substance occurs in large amounts. In *Fascioloides* and *Fasciola* the vitellaria contain large amounts whereas in some other genera there is little or none. Mature sperms of *Fasciola*, *Fascioloides*, *Siphodera*, *Gorgodera*, *Gorgoderina* and *Cryptocotyle* give a diffuse glycogen reaction. Large worms store more glycogen than small ones. Miracidia and cercariae of *Schistosoma mansoni* and *S. japonicum* were found to contain considerable amounts as an energy reserve for their activity, but the primary sporocysts of *S. mansoni*, *S. japonicum* and *S. haematobium* were free from glycogen. R.T.L.

258—Journal of Neurosurgery. Springfield, Ill.

- a. SPEIGEL, I. J., 1947.—“Cerebral schistosomiasis. Report of a case with surgical removal of an intracerebral mass of schistosomal ova.” 4 (1), 72-80.

259—Journal of Parasitology.

- a. CHANDLER, A. C., 1947.—“The species of the genus *Filaria* Mueller, 1787, s.str.” 33 (6), 449-452.
 b. STUNKARD, H. W., 1947.—“A dicrocoeliid trematode, *Eurytrema vulpis* n.sp. provis., from the pancreatic ducts of the red fox.” 33 (6), 459-466.
 c. ROBINSON, Jr., E. J., 1947.—“Notes on the life history of *Leucochloridium fuscostriatum* n.sp. provis. (Trematoda: Brachylaemidae).” 33 (6), 467-475.
 d. VON BRAND, T. & FILES, V. S., 1947.—“Chemical and histological observations on the influence of *Schistosoma mansoni* infection on *Australorbis glabratus*.” 33 (6), 476-482.
 e. JAHNES, W. -G. & HODGES, E. P., 1947.—“An improved method of sedimenting *Schistosoma japonicum* and other helminth ova.” 33 (6), 483-486.
 f. VAN CLEAVE, H. J. & MANTER, H. W., 1947.—“A new species of the acanthocephalan genus *Filisoma* from the Dry Tortugas, Florida.” 33 (6), 487-490.
 †g. SHORT, R. B., 1947.—“Unisexual infections with *Schistosomatium douthitti* (Trematoda).” 33 (6, Sect. 2), Suppl. p. 9.
 †h. REID, W. M., 1947.—“Penetration glands in cyclophyllidean oncospheres.” 33 (6, Sect. 2), Suppl. p. 9.
 †i. OLIVIER, L., 1947.—“Observations on experimental dermatitis in humans induced by cercariae of *Trichobilharzia stagnicolae* (Talbot, 1936).” 33 (6, Sect. 2), Suppl. pp. 9-10.
 †j. THOMAS, L. J., 1947.—“Notes on the life cycle of *Schistocephalus* sp., a tapeworm from gulls.” 33 (6, Sect. 2), Suppl. p. 10.
 †k. OFFUTT, E. P., 1947.—“A new ruling for the ocular disc of special usefulness in the teaching of medical parasitology.” 33 (6, Sect. 2), Suppl. p. 11.
 †l. McKAY, F. & MOREHOUSE, N. F., 1947.—“Studies on experimental blackhead infection in turkeys.” 33 (6, Sect. 2), Suppl. pp. 11-12.

† Abstract of a paper prepared for the 22nd Annual Meeting of the American Society of Parasitologists, Chicago, Illinois, December 29, 30, 31, 1947.

- †m. THRELKELD, W. L., 1947.—"Progress report on the parasitic stages of *Chabertia ovina*." 33 (6, Sect. 2), Suppl. p. 12.
- †n. KRUIDENIER, F. J., 1947.—"What is a virgula in virgulate cercariae?" 33 (6, Sect. 2), Suppl. pp. 12-13.
- †o. BEAVER, P. C., 1947.—"Quantitative hookworm diagnosis by direct smear." 33 (6, Sect. 2), Suppl. p. 13.
- †p. KERR, K. B. & CAVETT, J. W., 1947.—"A method for testing the effect of substances upon the activity of the larger nematodes." 33 (6, Sect. 2), Suppl. p. 13.
- †q. SADUN, E. H., 1947.—"Immunity in chickens to *Ascaridia galli*." 33 (6, Sect. 2), Suppl. pp. 13-14.
- †r. SCOTT, J. A., 1947.—"Factors in the resistance of white rats to infection with the cotton rat filariids." 33 (6, Sect. 2), Suppl. p. 14.
- †s. OTTO, G. F. & MAREN, T. H., 1947.—"Comparative filaricidal activity of trivalent arsenic and antimony." 33 (6, Sect. 2), Suppl. p. 14.
- †t. KATES, K. C. & RUNKEL, C. E., 1947.—"Observations on oribatid mites, vectors of *Moniezia expansa* on pastures, with a report of several new vectors from the U.S." 33 (6, Sect. 2), Suppl. p. 15.
- †u. BYRD, E. E., 1947.—"The trematode genus *Tannerlania* in resident birds of the United States." 33 (6, Sect. 2), Suppl. pp. 16-17.
- †v. KRUIDENIER, F. J., 1947.—"Mucin in developing digenetic trematodes." 33 (6, Sect. 2), Suppl. p. 17.
- †w. VENARD, C. E. & WARFEL, J. H., 1947.—"Some effects of *Acanthocephala* on the large-mouthed black bass." 33 (6, Sect. 2), Suppl. p. 17.
- †x. ROUDABUSH, R. L., 1947.—"A method for relaxing and fixing large cestodes." 33 (6, Sect. 2), Suppl. p. 17.
- †y. FAUST, E. C. & BONNE, C., 1947.—"Mammalian blood flukes of Celebes." 33 (6, Sect. 2), Suppl. p. 17.
- †z. CORT, W. W., AMEEL, D. J. & VAN DER WOUDE, A., 1947.—"Germinal masses in the rediae of the trematode Order Fasciolatoidea Szidat, 1936." 33 (6, Sect. 2), Suppl. pp. 17-18.
- †ba. AMEEL, D. J., CORT, W. W. & VAN DER WOUDE, A., 1947.—"Germinal material in mother sporocysts and rediae of *Halipegus eccentricus* Thomas, 1939." 33 (6, Sect. 2), Suppl. p. 18.
- †bb. MAYHEW, R. L., 1947.—"Additional infection experiments with the hookworm, *Bunostomum phlebotomum*, in the calf." 33 (6, Sect. 2), Suppl. pp. 18-19.
- †bc. STUNKARD, H. W., 1947.—"On certain pseudophyllidean cestodes from Alaskan pinnipeds." 33 (6, Sect. 2), Suppl. p. 19.
- †bd. FRICK, L. P. & ACKERT, J. E., 1947.—"Nature of duodenal nematode growth-inhibiting factor." 33 (6, Sect. 2) Suppl. p. 19.
- †be. RIEDEL, B. B. & ACKERT, J. E., 1947.—"Further studies on hydrogen-ion concentration as a factor in age resistance to the fowl ascarid." 33 (6, Sect. 2), Suppl. pp. 19-20.
- †bf. ACKERT, J. E., COOPER, R. M. & DEWHIRST, L. W., 1947.—"Age of *Ascaridia* egg culture a factor in worm growth." 33 (6, Sect. 2), Suppl. p. 20.
- †bg. FOSTER, A. O., ENZIE, F. D., HABERMANN, R. T. & ALLEN, R. W., 1947.—"The status of the sodium fluoride treatment for the removal of large roundworms from swine." 33 (6, Sect. 2), Suppl. p. 20.
- †bh. BRACKETT, S. & BLIZNICK, A., 1947.—"Screening large numbers of new chemical compounds for anthelmintic activity using infections of *Nippostrongylus muris* in mice." 33 (6, Sect. 2), Suppl. p. 20.
- †bi. HAWKINS, P. A. & FREITAS, M. G. DE, 1947.—"Studies of sheep parasites. VIII. Overwintering of nematode larvae." 33 (6, Sect. 2), Suppl. p. 22.
- †bj. WARD, J. W., 1947.—"The life history and bionomics of *Heterakis bonasae*, a caecal nematode of bobwhite quail, *Colinus virginianus* and *C. virginianus texanus*." 33 (6, Sect. 2), Suppl. p. 23.
- †bk. WARD, J. W., 1947.—"Further taxonomic studies on internal parasites of horses and mules." 33 (6, Sect. 2), Suppl. p. 23.
- †bl. WARD, J. W., 1947.—"Studies on parasites and food habits of foxes." 33 (6, Sect. 2), Suppl. pp. 23-24.
- †bm. MALDONADO, J. F. & ACOSTA-MATIENZO, J., 1947.—"Longevity and rates of infectivity of the free-swimming miracidia of *Schistosoma mansoni*." 33 (6, Sect. 2), Suppl. p. 24.
- †bn. WANTLAND, W. W. & MARTIN, P., 1947.—"An investigation of some possible sources of trichina infection in a central Illinois community." 33 (6, Sect. 2), Suppl. p. 24.
- †bo. LARSH, Jr., J. E. & HENDRICKS, J. R., 1947.—"The localization of adult *Trichinella spiralis* in the intestinal tract of young and old mice." 33 (6, Sect. 2), Suppl. p. 24.
- †bp. LARSH, Jr., J. E., 1947.—"The effect of thyroid and thiouracil on the natural resistance of mice to infection with *Hymenolepis*." 33 (6, Sect. 2), Suppl. pp. 24-25.

† Abstract of a paper prepared for the 22nd Annual Meeting of the American Society of Parasitologists, Chicago, Illinois, December 29, 30, 31, 1947.

- †bq. NIGRELLI, R. F., 1947.—“Susceptibility and immunity of marine fishes to *Benedenia* (= *Epibdella*) *melleni* (MacCallum), a monogenetic trematode. III. Natural hosts in the West Indies.” 33 (6, Sect. 2), Suppl. p: 25.
- †br. WALTON, A. C., 1947.—“Parasites of the Ranidae (Amphibia). I.” 33 (6, Sect. 2), Suppl. pp. 25-26.
- †bs. WALTON, A. C., 1947.—“Parasites of the Ranidae (Amphibia). II.” 33 (6, Sect. 2), Suppl. p. 26.
- †bt. WALTON, A. C., 1947.—“Parasites of the Ranidae (Amphibia). III.” 33 (6, Sect. 2), Suppl. pp. 26-27.

(259a) Chandler critically reviews previous descriptions of *Filaria martis* collected from different parts of the world, and compares this species with *F. carvalhoi* Freitas & Lent, 1937 and with specimens collected from *Mephitis mesomelas varians* in Texas. The Texan specimens are named *F. texensis* n.sp. owing to the striking differences in the eggs. The only difference found between *F. carvalhoi* and the Old World *F. martis* is in the strikingly larger body of the former, and on this account Chandler retains it as a separate species. R.T.L.

(259b) Stunkard gives a detailed description of *Eurytrema vulpis* n.sp. from *Vulpes fulva* in Rockland County, N.Y. It approximates closely to *E. procyonis* but it is pointed out that a satisfactory differential diagnosis of the species of *Eurytrema* can only be made after experimental work has been carried out. The validity of the genera *Concinnum* and *Platynosomum* is regarded as doubtful. This will result in the inclusion of about 40 species in *Eurytrema* but many of the descriptions are incomplete. R.T.L.

(259c) A brown-banded sporocyst belonging to the genus *Leucochloridium* is described from *Succinea ovalis*. The metacercariae when fed to an English sparrow gave adults now named, owing to the colour and pattern of the brood-sac, *L. fuscostriatum* n.sp. *provis*. R.T.L.

(259d) Infection of *Australorbis glabratus* with developmental stages of *Schistosoma mansoni* did not affect significantly the snail's oxygen consumption or storage of fat. The polysaccharide content, however, was lowered, and the reasons for this are discussed. R.T.L.

(259e) As a simple method for recovering helminth eggs and larvae where chemicals or equipment necessary for other methods are not available, the use of 10% ethyl alcohol (sp.gr. 0.986) is recommended. It compares favourably with 0.5% glycerin in water. R.T.L.

(259f) A fifth species of the genus *Filisoma*, viz., *F. fidum* n.sp., is described from the marine fish, *Kyphosus sectatrix*. It is very similar to *F. bucerium* but differs in possessing smaller proboscis hooks in a greater number of rows. There is a key to the *Filisoma* species. R.T.L.

(259g) Short has recovered sexually mature *Schistosomatium douthitti* females, containing eggs with fully developed living miracidia, from experimentally infected laboratory-reared mice harbouring adult worms of one sex only. No spermatozoa were found in the seminal receptacles of females or in their eggs from unisexual infections derived from single miracidium infection of *Limnaea palustris*. R.T.L.

(259h) A pair of unicellular glands which appear to be correlated with the penetration process have been observed in the oncospheres of *Raillietina cesticillus*, *Choanotaenia infundibulum*, *Moniezia expansa* and *Hymenolepis* sp. R.T.L.

(259i) Evidence was obtained experimentally that the cercariae of *Trichobilharzia stagnicolae* can penetrate the human skin. A prickling sensation was followed by maculae which developed into papules; these, however, were small and there was no associated oedema or diffuse erythema. It is suggested that repeated infection with this cercaria is necessary to produce typical schistosome dermatitis. R.T.L.

(259j) The coracidia of *Schistocephalus* sp. from gulls on Lake Michigan were developed experimentally in *Cyclops leuckarti*. R.T.L.

† Abstract of a paper prepared for the 22nd Annual Meeting of the American Society of Parasitologists, Chicago, Illinois, December 29, 30, 31, 1947.

(259k) A new ruling is suggested for the ocular disc of the microscope. It includes a pointer, an approximate ocular micrometer, an indicator of red cell average size and a means of overlapping the field. R.T.L.

(259l) [A fuller account of this paper appears in *J. Parasit.*, 1948, 34 (2), 137-141. For abstract see *Helm. Abs.*, 17, No. 97 l.]

(259m) The third-stage larvae of *Chabertia ovina* ecdysed 90 hours after being administered orally to lambs and were found attached to or within the mucosa of the upper colon. There were profuse petechial haemorrhages. A provisional mouth capsule was forming on the sixth day; this was complete on the 13th day. Sex differentiation was evident and the permanent buccal capsule was formed by the 18th day, the worms being then slightly over 2 mm. long. On the 34th day the worms averaged 7 mm. and the genital organs were well developed. Eggs appeared in the faeces on the 48th to 54th day. R.T.L.

(259n) The virgula present in certain species of xiphidiocercariae is a bilobed or paired organ in or near the oral sucker, and is a reservoir for mucin secretion which supplements the weak oral sucker as a means of attachment. R.T.L.

(259o) As statistical analysis of multiple egg-count data indicates that *Necator americanus* eggs have a random distribution in the faeces, the direct smear can be standardized by using a photo-electric type of light meter to measure its density. Egg-counts on individual stools by the standard direct smear do not vary more than those made by the Stoll dilution method. The counts can be readily interpreted as eggs per c.c. of formed stool or as worm burden. R.T.L.

(259p) By using *Ascaridia galli* suspended in physiological saline at 40°C. so as to permit recording of its movements on a smoked drum, Kerr & Cavett have devised a rapid and reasonably accurate technique whereby potential anthelmintics can be tested *in vitro*. There is a shortening of the worm and cessation of the normal irregular contractions when the saline is replaced by a solution of a substance which has an anthelmintic action. R.T.L.

(259q) Thirty out of 36 chickens which had previously been infected experimentally with eggs of *Ascaridia galli* eliminated all the worms of a test dose while the controls, with one exception, harboured 6-92 worms each. This resistance continued for over two months. *In vitro*, precipitates formed around *Ascaridia* larvae in sera from heavily infected chickens, but were absent in normal sera, indicating the existence of antibodies. Intraperitoneal injection with serum from hyperimmune birds showed that these antibodies are protective and can be transferred passively. Sadun concludes that the age resistance and acquired immunity are serological in part at least. R.T.L.

(259r) The rate of growth of *Litosomoides carinii* is slower, and more die or are immobilized by tissue reaction before reaching maturity, in white rats than in cotton rats. A covering of host cells often surrounds parts of the worms while these are still alive. R.T.L.

(259s) Several amide-substituted phenyl arsenoxides are lethal against adults of *Dirofilaria immitis* as well as those of *Litosomoides carinii*. They have little direct effect on the microfilariae even at higher concentrations than those lethal to the adults, but the microfilariae of *Wuchereria bancrofti* are rapidly killed by doses which do not affect those of the other two species. Trivalent antimonials killed the microfilariae but not the adults although they injured the reproductive organs. R.T.L.

(259t) [A fuller account of this paper appears in *Proc. helm. Soc. Wash.*, 1948, 15 (1), 10, 19-33. For abstract see *Helm. Abs.*, 17, No. 44a.]

(259u) Unspecified species of *Tamerlania* have been collected from three species of resident birds of the U.S.A. R.T.L.

(259v) The occurrence of mucus-secreting cells in various types of cercariae indicates that mucin must have considerable significance in developing trematodes. R.T.L.

(259w) Much mechanical damage of the mucosa and submucosa of the gut of *Huro salmoides* is caused by the spiny proboscis of *Leptorhynchoides thecatus* and *Neoechinorhynchus cylindricus*.
R.T.L.

(259x) Tapeworms of the size of *Taenia saginata* are relaxed in an ice-box overnight, wound round a beaker, and fixed in a solution of 95% ethyl alcohol 24 parts, formalin 15 parts, glacial acetic acid 5 parts, glycerin 10 parts and tap water 46 parts.
R.T.L.

(259y) [A fuller account of this paper appears in *J. Parasit.*, 1948, 34 (2), 124-131. For abstract see *Helm. Abs.*, 17, No. 97j.]

(259z) Immature rediae of an amphistome and a notocotyloid had simple morula-like germinal masses consisting of unicellular components; these were gradually used up by the formation of embryos from their components. In a psilostome and certain echinostomes, the youngest rediae had also germinal masses consisting only of unicellular components; older rediae, both mother and daughter, had larger germinal masses with unicellular and multicellular components and these were still present in the oldest rediae examined.
E.M.S.

(259ba) In the hemiurid, *Halipegus eccentricus*, a morula-like germinal mass with unicellular components only is present in the miracidium and in the youngest mother sporocyst. The body-cavity becomes almost filled with masses composed of both unicellular and multicellular components which produce large numbers of redial embryos. In the oldest mother sporocyst seen one germinal mass still persisted. A similar process occurs within each redial embryo, giving rise to very large numbers of cercarial embryos over a long period.
E.M.S.

(259bb) Experimental infections of calves with *Bunostomum phlebotomum* suggest that it causes severe symptoms and economic loss, that infection takes place through the skin, that symptoms develop during the prepatent period, and that general health improvement follows during the parasite's adult life.
R.T.L.

(259bc) [A fuller account of this paper appears in *J. Parasit.*, 1948, 34 (3), 211-228. For abstract see *Helm. Abs.*, 17, No. 97r.]

(259bd) A nutritional factor inhibits the growth of *Ascaridia galli* in duodenal mucus from resistant chickens. This is a temporary effect, for growth is resumed when the worms are placed in a nutrient solution.
R.T.L.

(259be) Evidence is given that hydrogen-ion concentration is not a factor in age resistance of chickens to *Ascaridia galli*.
R.T.L.

(259bf) [A fuller account of this paper appears in *Trans. Amer. micr. Soc.*, 1947, 66 (4), 383-389. For abstract see below, No. 340b.]

(259bg) The most satisfactory method of administering sodium fluoride for round-worms in pigs is to give 0.1 gm. per lb. live-weight in dry ground food at a concentration of 1% for one day.
R.T.L.

(259bh) The worm counts at autopsies of young mice experimentally infected with *Nippostrongylus muris* were used satisfactorily for large-scale screening of new compounds for indications of anthelmintic activity. Trichloracetamide and related compounds affect only the larval stages in the tissues.
R.T.L.

(259bi) A mean temperature of about 40°F. is required for the development of infective larvae of sheep trichostrongyles. Increases in egg-counts during the winter months are referable to variation in the egg production rate of the female worms which survive the winter, but its cause is still unknown.
R.T.L.

(259bj) *Heterakis bonasae* has a direct life-history. The infective stage is reached in about 16 days; 47 days elapse between infection and the attainment of the adult stage. Eggs develop normally even after drying for thirteen months.
R.T.L.

(259bk) Seventeen species of intestinal helminths from horses and mules in the U.S.A. are named. Age and parasite load could not be correlated.
R.T.L.

(259bl) Fifteen out of 17 wild grey foxes trapped in Mississippi harboured *Taenia pisiformis*, two had *Toxocara canis* and one had *Uncinaria stenocephala*. The stomach commonly contained field rats.

R.T.L.

(259bm) The life of free-swimming miracidia of *Schistosoma mansoni* is 8-9 hours. Successful penetration of *Australorbis glabratus* was 65.4% at one hour, 65% at two hours, decreasing to 3.9% at eight hours. None were alive at nine hours. Hatching mortality and infectivity varied markedly daily. Beyond 48 hours after stools were placed in water the number of eggs hatched was negligible.

R.T.L.

(259bn) *Trichinella spiralis* was not found in any of 37 pigs, 32 rats and 10 samples of pork products examined from various sources in central Illinois.

R.T.L.

(259bo) In young mice experimentally infected with 300 *Trichinella spiralis* larvae, 36% of the resulting adult worms were found in the first half and 64% in the second half of the small intestine, whereas in old mice similarly infected 84.7% occurred in the first half and 15.3% in the second half.

R.T.L.

(259bp) The administration of thyroid extract and thiouracil appeared to have little effect on the percentage development of *Hymenolepis* in mice.

R.T.L.

(259br, 259bs, 259bt) The helminths hitherto recorded for the family Ranidae are listed under hosts.

R.T.L.

260—Journal of Pharmacology and Experimental Therapeutics.

- a. NESS, A. T., BRADY, F. J., COWIE, D. B. & LAWTON, A. H., 1947.—“Anomalous distribution of antimony in white rats following the administration of tartar emetic.” 90 (2), 174-180.

261—Journal of the Philippine Medical Association.

- a. PESIGAN, T. P., 1947.—“Results of a brief schistosomiasis survey around Lake Mainit, Mindanao.” 23 (1), 23-32.
- b. CALUBAQUIB, P. B. & ROLDA, H., 1947.—“The incidence of intestinal parasitism among food handlers.” 23 (4), 149-152.
- c. GUEVARA, R., 1947.—“Toxicity of oil of chenopodium when administered together with castor oil.” 23 (6), 259-267.
- d. PESIGAN, T. P., TORRES, Jr., L. F. & RECIO, P. M., 1947.—“Paragonimiasis westermani: an unexpected case with cystic formation in the anterior abdominal wall.” 23 (7), 293-298.
- e. MUNDO, F. DEL, BALTAZAR, S., SUCGANG, E. & PALARCA, E., 1947.—“Ascariasis in children and the response to hexylresorcinol.” 23 (12), 601-604.

(261a) In Mindanao, *Blanfordia* [= *Oncomelania*] *quadrasi* infected with *Schistosoma japonicum* were collected in two localities around Lake Mainit, Surigao and the Poblacion of Jabonga, Agusan, where a new endemic area was determined. Within the municipality of Mainit, Surigao, the incidence of *S. japonicum* was 21.6% of 125 inhabitants and in the Jabonga area it was 6% of 100 inhabitants.

R.T.L.

(261b) The most prevalent intestinal parasite among food handlers in Manila, Philippine Islands, was *Ascaris lumbricoides*. This occurred in 55.62% of the Filipinos and 60.63% of the Chinese so employed.

R.T.L.

(261c) Experiments on cats show that the toxicity of oil of chenopodium is greatly reduced by the simultaneous administration of castor oil. Cats in the Philippines are twice as susceptible as those in the U.S.A.

R.T.L.

(261d) Only five cases of *Paragonimus* infection in the Philippines are recorded in the literature but nine others are known to the authors through personal communication. A new case is now described. The diagnosis was made from an examination of a cyst in the anterior abdominal wall which was discharging pus through the umbilicus.

R.T.L.

(261e) Of 347 cases of ascariasis in children between 1945 and 1947 at the North General Hospital in the Philippines, 331 were treated with hexylresorcinol; 251 expelled *Ascaris* worms. Only 13 patients showed untoward effects. Six of these suffered from burns of the buccal mucous membrane and adjacent skin through crushing the cystoids, three had increased abdominal pains, three had nausea and one showed lassitude. R.T.L.

262—Journal of the Royal Egyptian Medical Association.

- a. NAGATY, H. F., HEGAB, S. M. & MEGUID FAHMY, M. A., 1947.—“On the identity of *Avitellina woodlandi* & *A. nagaty*, with further new records of some parasites from Egyptian food mammals.” 30 (8), 401-403.
- b. KHALIL, M. & HALAWANI, A., 1947.—“Cloroben as snail poison for control of bilharziasis—its danger to the rice plant.” 30 (9), 454-460.
- c. EL AYADI, M. S., 1947.—“Treatment of Bilharzia by the oral route.” 30 (11), 562-566.
- d. TALAAT, S. M. & SHOAIIB, S., 1947.—“The intensive treatment of bilharziasis with tartar emetic.” 30 (12), 598-607.
- e. HALAWANI, A., NEWSOME, J. & WOOTTON, I. D. P., 1947.—“Miracil D: investigation of blood levels after a single dose.” 30 (12), 656-662.
- f. ERFAN, M. & TALAAT, S., 1947.—“Demonstration of *Schistosoma* ova in the liver by biopsy.” 30 (12), 663-664.

(262a) *Avitellina nagaty* Ezzat, 1945 from camels and sheep in Egypt is shown to be a synonym of *A. woodlandi* Bhalerao, 1936 described from goats in India. The following nematodes are recorded for the first time for Egypt: *Haemonchus longistipes* in camels, *Nematodirus spathiger* in sheep, *Cooperia punctata* and *C. oncophora* in cattle. R.T.L.

(262b) “Cloroben” is a patent emulsion containing orthodichlorobenzene used in the U.S.A. to control septic conditions in water and sewage. Although it kills snails and aquatic plants attention is drawn to the fact that in Egypt its use is potentially dangerous to irrigated crops. R.T.L.

(262c) El Ayadi has carried out a series of experiments on dogs and monkeys in an attempt to evolve a satisfactory method of administering antimony by the mouth for the cure of *Schistosoma haematobium* infection. Riboflavin was found to increase the absorption of antimony from the alimentary canal; about 2.5-3.0 mg. was effective. Tests on five monkeys infected experimentally with *S. haematobium* showed that the oral administration of 2 c.c. “Reprodral” [=fouadin] per kg. body-weight with riboflavin was effective. It is concluded that the curative dose may approximate 1 c.c. per kg. body-weight but further trials on monkeys and tests on human cases are considered necessary. R.T.L.

(262d) Alves & Blair's method of treating schistosomiasis by giving three intravenous injections of tartar emetic at 3-hour intervals on two successive days was tried in five cases but had to be abandoned in all of them because of collapse. This confirmed the experience of colleagues in Kasr-el-Ainy Hospital, Cairo and the method is, in the authors' opinion, both dangerous and unpractical for mass therapy. After several other methods were tested it was found that two injections of 2 grains each, dissolved in 10 c.c. of saline and given six hours apart for two consecutive days gave satisfactory results. R.T.L.

(262e) As Miracil D (1-methyl-4-diethyl- β -aminoethylaminoxanthone) has been recommended by Kikuth & Gonnert for the treatment of schistosomiasis, the frequency of dosage of 400 mg. which would maintain a safe and constant miracil level in the blood in Egyptian patients was examined and was found to be 12-hourly intervals in patients with good kidney function, and 24-hourly intervals in those with poor kidney function. R.T.L.

(262f) Schistosome eggs were obtained in 21 out of 41 cases of hepatic schistosomiasis by biopsy of the liver. Eleven of these showed eggs of *S. mansoni*, 5 gave eggs of *S. haematobium* and in 5 cases eggs of both species were seen. In 7 out of the 21 cases there were no eggs in the faeces. As eggs occurred in the faeces, urine or liver in 39 out of the 41 cases examined, the theory that hepatic schistosomiasis is due to infection with male worms is thought to be

untenable. Hepatic schistosomiasis is almost invariably associated with intestinal infection, for enlarged liver and spleen occurred in 19 of the 21 positive cases. The operation of liver biopsy is a simple and safe procedure.

R.T.L.

263—Journal of the Royal Naval Medical Service.

- a. STEWART, G. T., 1947.—“The carrier rate of intestinal infections in Trincomalee.” 33 (1), 6-8.

(263a) An examination of 344 Asiatic food handlers from various service establishments at Trincomalee, Ceylon, showed the following infection rates: *Ascaris* 3.8%, hookworm 12.5%, *Trichuris* 5.5%. Some were clinical cases, others were healthy carriers. A group of 200 apparently healthy symptomless Asiatics gave the following estimated carrier rates: *Ascaris* 4.5%, hookworm 14%, *Trichuris* 3%. Of 274 Europeans examined none showed helminth infection.

R.T.L.

264—Journal of the South African Veterinary Medical Association.

- a. MEESER, M. J. N., 1947.—“Intestinal parasites of sheep.” 18 (3), 97-100.

(264a) Meeser summarizes ten years of observation on the incidence of helminths in sheep in the 19 districts of the Cape Western Veterinary Area. The stock losses due to these infestations were severe and in many cases entire flocks died out. The infestation was often so general that it was not possible to incriminate any single species. [No worm counts are given.]

R.T.L.

265—Journal of Wildlife Management.

- a. ERICKSON, A. B., 1947.—“Helminth parasites of rabbits of the genus *Sylvilagus*.” 11 (3), 255-263.

(265a) The results of surveys of the helminth parasites of *Sylvilagus* spp. in 16 states by various workers are synthesized, and Erickson's findings in 97 cottontails (*S. floridanus mearnsi*) in Minnesota are given. Host lists and a key for the identification of the parasites are provided, together with a bibliography of 60 references.

E.M.S.

266—Jugoslovenski Veterinarski Glasnik.

- a. VINTERHALTER, M., 1947.—“Otrovanje krave sa crvomorom (CCl₄) Carboneum tetrachloratum.” 1 (6), 283-287. [In Croatian.]
b. KATICH, R. V., 1947.—[Efficacy of treatment of monieziasis in lambs with 1% copper sulphate solution.] 1 (6), 298-302. [In Serbian.]

(266a) Vinterhalter describes a case of poisoning in a cow which received 105 c.c. of carbon tetrachloride as an anthelmintic. A detailed description is given of the post-mortem findings and the histopathological changes in the organs.

C.R.

(266b) Katich reports good results in the treatment of monieziasis in lambs with a 1% solution of copper sulphate. He concludes that lambs should get a prophylactic dose before the tapeworms reach maturity and a second dose should be given a month later.

C.R.

267—Lancet.

- a. BLAIR, D. M., HAWKING, F. & ROSS, W. F., 1947.—“The effect of Miracil D on human schistosomiasis.” Year 1947, 2 (6486), 911-912.

(267a) Miracil D was given in maximum tolerated dosage for three weeks to 42 African and Eurafrian patients with *Schistosoma haematobium* (38 cases) and/or *S. mansoni* (11 cases). Two months after the end of treatment, 86% of the patients were still passing living ova.

E.M.S.

268—Maandblad voor de Landbouwvoorlichtingsdienst.

- a. MURRE, M., 1947.—“Onderzoek op het bietenaaltje.” 4 (10), 436–438.

(268a) Murre reports on tests carried out in Schouwen and Duiveland (Zeeland) from 1941 to 1946 to determine the extent of infestation with sugar-beet eelworm. Preliminary tests in March 1941 gave an average of 50 cysts per 75 gm. air-dried soil; at harvest time the figures were 26 cysts per 75 gm. soil. Further tests during 1942 and 1943 showed 44.6% of soil samples to be uninfected or lightly infected, 28.3% to be moderately infected and 27.1% heavily infected. In autumn 1944 Schouwen and Duiveland were inundated and evacuated. As soon as possible after liberation in May 1945 the polders were drained. Examination of soil samples showed that flooding had not killed off the eelworms: 30 out of 51 samples contained viable cysts. Tests in autumn and winter 1945–46 showed 41.4% of samples uninfected or lightly infected, 32.9% moderately infected, and 25.7% heavily infected. Cultivation of sugar-beet was prohibited in 1946 on 60% of the area. A.E.F.

269—Medical Press and Circular.

- a. CAWSTON, F. G., 1947.—“Schistosomiasis.” 217 (24), 508–509.
b. LAPAGE, G., 1947.—“Diseases which man may acquire from his pets.” 218 (17), 369–378.

(269a) Cawston deprecates the use of small doses of proprietary remedies instead of tartar emetic for schistosomiasis. 3–4 c.c. of tartar emetic are necessary for the destruction of adult schistosomes after tolerance for the drug has been acquired, and the doses are better given 4–5 times weekly until at least 0.5 gm. of the metal has been reached within 3–4 weeks. The dosage should depend on the tolerance, not the body-weight, of the patient. R.T.L.

270—Medicina. Revista Mexicana.

- a. NETTEL F., R., 1947.—“Contribución al estudio del tratamiento de la onchocercosis. *Onchocerca volvulus* Leuckart, 1893 (sin: *Onchocerca caecutiens* Brumpt, 1919).” 27 (525), 53–69. [English summary p. 68.]
b. RUIZ REYES, F., 1947.—“Estado actual del tratamiento de la onchocercosis.” 27 (533), 245–250. [English summary pp. 247, 250.]
c. CASIS SACRE, G., 1947.—“Estado de nuestros conocimientos sobre la onchocercosis.” 27 (537), 345–350.
d. RUIZ REYES, F., 1947.—“Tratamiento experimental en la onchocercosis con el ‘Naphuride sodium’.” 27 (542), 475–477.
e. HERNÁNDEZ LIRA, J. P., 1947.—“Aspecto mexicano en relación con la clínica y el tratamiento de la uncinariasis.” 27 (543), 481–493.

(270b) Ruiz Reyes tabulates the results of treating nine cases of onchocerciasis by surgical means and/or by antimonial injections. He concludes that the best results are obtained by a combination of both methods but emphasizes that all the nodules must be removed. Serious ocular complications are not affected by this treatment. J.J.C.B.

(270c) Casis Sacre presents an article on modern concepts of onchocerciasis and classifies the fundamental facts concerning the disease under three headings:—(i) those which are already known, (ii) those which have been insufficiently investigated, and (iii) those which are unknown. J.J.C.B.

(270d) “Naphuride sodium” is said to be the same substance variously known as Germanin, Bayer 205, Moranyl, 309 Fournau, Antrypol and Naganol. Five cases of onchocerciasis of 10–15 years’ standing each received a course of five weekly intravenous injections of 1 gm. of “Naphuride sodium” in 10% solution. The treatment produced headache, nausea, vomiting and occasionally severe nephritis. Skin biopsies showed no significant alteration in microfilarial counts. E.M.S.

(270e) Hernández Lira reviews the epidemiology, symptomatology and treatment of human hookworm disease in Mexico. *Necator americanus* constitutes 93–98% of the specimens recovered after treatment. Tetrachlorethylene is the usual remedy at the present time; the use of carbon tetrachloride has been completely discontinued. Iron therapy is considered essential after treatment. E.M.S.

271—Medicina Colonial. Madrid.

- a. VALDÉS RUIZ, M. & SALAR LUIS, E., 1947.—“Quiste hidatídico del bazo.” 10 (4), 207–220.
- b. GONZÁLEZ CASTRO, J., 1947.—“Fasciolosis hepática en general, y en especial en España.” 10 (4), 221–268.

272—Medisch Maandblad. Batavia.

- a. BONNE, C., BRAS, G. & LIE KIAN JOE, 1947.—“*Echinostoma revolutum* (Froelich 1802). Een nieuwe echinostoom van den mensch op Java.” No. 11, pp. 207–209. [English summary p. 209.]

(272a) During the Japanese occupation, an echinostome not previously seen in man was twice found in Indonesians in Batavia. A case is now described in which 85 specimens of the new parasite, now identified as *Echinostoma revolutum*, normally parasitic in ducks and geese, were found at autopsy in an 8-year-old Indonesian child in Java. The specimens are differentiated from *E. lindoensis* of Celebes. [*E. revolutum* has been recorded as a natural infection of man in Mexico—see Helm. Abs., Vol. IX, No. 225.]

E.M.S.

273—Medycyna Weterynaryjna.

- a. RAYSKI, C., 1947.—“Ocena fenotiazyny jako środka przeciw pasożytniczego.” 3 (1), 3–8. [In Polish.]
- b. STAŚKIEWICZ, G., 1947.—“Studia nad *Agamodistomum musculorum suis*.” 3 (1), 28–31. [In Polish.]
- c. DZIEKONSKI, J., 1947.—“Badania nad ogniskami pasożytniczymi w węzłach chłonnych bydła.” 3 (3), 140–142; (4), 235–237. [In Polish: French summary pp. 236–237.]
- d. ERDSTEIN, L., 1947.—“Przyczynek do zatruc czterochlorkiem węgla u srebrnych lisów.” 3 (3), 167–168. [In Polish.]
- e. ŻARNOWSKI, E., 1947.—“Znaczenie higieny stajni i pastwiska w zwalczaniu robaczycy jelitowej koni.” 3 (5), 311–315. [In Polish.]
- f. SOŁTYS, A., 1947.—“Przyczynek do badań robaków pasożytniczych psów powiatu Puławskiego.” 3 (9), 567–570. [In Polish: French summary p. 570.]
- g. CENA, M., 1947.—“Analiza porównawcza odpornościowych zjawisk przy włośnicy.” [Comparative review of resistance phenomena in trichinellosis.] 3 (9), 586–589; (10), 669–672; (11), 739–742; (12), 817–818. [In Polish.]
- h. STEFANSKI, W., 1947.—“Anoreksja powodowana u świń przez pasożytniczego nicienia *Strongyloides suis* i jej leczenie.” 3 (10), 634–637. [In Polish: French summary pp. 636–637.]
- i. TRAWINSKI, A., 1947.—“Serologiczno-alergiczne metody rozpoznawania chorób pasożytniczych wywołanych przez bipatogenne pasożyty zwierzęce.” 3 (11), 721–722. [In Polish.]

(273a) Rayski gives a summary of the most up-to-date knowledge of the uses of phenothiazine in veterinary practice.

C.R.

(273b) Staśkiewicz found that 4 of the 27 wild boars examined by him in 1943–44 were infested with *Agamodistomum musculorum suis*. He emphasizes the necessity to confirm Ejsmont's theory that *A. musculorum suis* is a developmental stage of *Alaria alata*.

C.R.

(273c) While examining the mesenteric lymph nodes of cattle for larval stages of *Linguatula serrata*, Dziekoński found young stages of *Fasciola hepatica* in these lymph nodes.

C.R.

(273d) Erdstein reports the results obtained with carbon tetrachloride against ascarids in 70 young silver foxes, given 0.5 c.c. each. After treatment eight of the poorer animals died, but in the remainder improvement was observed.

C.R.

(273e) Żarnowski reviews the literature on the importance of hygiene in stables and pastures in the control of helminthiasis in horses.

C.R.

(273f) Sołtys examined 145 dogs, in Puławy, of which 127 were infested as follows: *Taenia pisiformis* 8, *Echinococcus granulosus* 13, *Dipylidium caninum* 48, unidentified tapeworm 1, *Toxocara canis* 25, *Uncinaria stenocephala* 48, *Ancylostoma caninum* 73, *Capillaria* sp. 2. In another survey he found that out of 1,252 dogs ten were infested with *Trichinella spiralis*.

C.R.

(273h) Stefański reports very good results obtained in the treatment of strongyloidiasis with gentian violet in 11 young piglets of 10–30 kg. body-weight. The drug was administered in doses of 0.25 gm. per animal on two successive days and proved most effective. C.R.

(273i) Trawiński gives a brief account of his methods of preparing antigens for sero-allergic diagnostic tests as follows. Antigen for cysticerciasis is prepared from evaginated scolices and necks of *Cysticercus cellulosae*, which are well washed in saline solution, dried, powdered and dissolved in 1 : 500 saline solution. Antigen for trichinelliasis is prepared from unencapsulated larvae of *Trichinella spiralis* from heavily infected rabbits (about 20 days after infection), extracted at 43°C. with a solution of 0.25% hydrochloric acid and 0.04% pepsin. After separating the larvae, they are well washed in saline solution and dried; for 1 c.c. of antigen 10,000 *Trichinella* larvae are used. Antigen for echinococcosis is prepared from brood capsules of fertile univesicular cysts as described for cysticercus antigen. These antigens were tested by Trawiński and his students on animals and human beings, and he claims that his method is superior to those of Buchmann [? Bachman], Casoni and Roth, and that it gives nearly 100% efficacy. C.R.

274—Mémoires de l'Académie de Chirurgie. Paris.

- a. BÉRARD, M. & SOURNIA, J., 1947.—“Kystes hydatiques du foie et des poumons.” 73 (18/19), 391–396. [Discussion pp. 395–396.]
- b. VERGOZ, SÁLASC, PANTIN & HOUEL, 1947.—“Quatre observations d'échinococcose péritonéale généralisée.” 73 (22/24), 510–518. [Discussion pp. 516–518.]

275—Memorias do Instituto Oswaldo Cruz.

- a. MAGALHÃES, O. DE & ROCHA, A., 1947.—“Estudos sobre a doença de Manson-Pirajá. (Esquistosomose pelo *Schistosoma mansoni*).” 45 (1), 183–210. [English summary pp. 205–206.]
- b. GUIMARÃES, F. N., 1947.—“Doenças encontradas nos romeiros de Bom Jesus da Lapa, Bahia.” 45 (1), 211–251.
- c. TRAVASSOS, L., 1947.—“Contribuição ao conhecimento dos helmintos do peixes d'água doce do Brasil. I. (Trematoda, Aspidogastriidae).” 45 (2), 513–516.
- d. TRAVASSOS, L., 1947.—“Contribuição ao conhecimento dos helmintos do peixes d'água doce do Brasil. II. (Trematoda, Heterophyidae).” 45 (2), 517–520.

(275a) Magalhães & Rocha give an account of the clinical aspects, incidence and geographical distribution of schistosomiasis mansoni in 88 mining towns of Minas Gerais. The overall average infection rate was 13.7%. They repeat the suggestion made by them in 1941 for the creation of a national service for the control of schistosomiasis in Brazil. Two maps and a comprehensive bibliography are appended. R.T.L.

(275b) Among the diseases met with during a visit to the Lapa district of Bahia, brief reference is made to filariasis and taeniasis, *Necator americanus*, *Ascaris lumbricoides*, *Trichuris trichiura* and *Enterobius vermicularis*. R.T.L.

(275c) *Zonocotyle bicaecata* n.g., n.sp. from *Curimatus elegans* is described and illustrated. The new genus belongs to the Aspidogastriidae; it is differentiated from other genera of this family by its adhesive organ consisting of transverse projections, by possessing two caeca and by the compact form of its vitelline glands. R.T.L.

(275d) *Itheringtrema iheringi* n.g., n.sp. is described and illustrated from *Pseudopimelodus roosevelti* collected in São Paulo. The new genus is assigned to the Heterophyidae and is nearly related to *Siphodera*. R.T.L.

276—Military Surgeon.

- a. OPPENHEIM, J. M., WHIMS, C. B. & FRISCH, A. W., 1947.—“Trichinosis. Clinical and laboratory observations in a group of 256 cases.” 101 (4), 294–301.

(276a) The 256 cases of trichinosis which were the subject of this study were all of a mild character as neither larval, mature nor encysted *Trichinella spiralis* could be demonstrated in the blood, stools, gastric contents or spinal fluid, and of 36 muscle biopsies only one was positive. R.T.L.

277—National Institute of Health Bulletin. Washington.

- a. WRIGHT, W. H., 1947.—“Studies on schistosomiasis. The geographical distribution and molluscan intermediate hosts of the schistosomes maturing in man.” No. 189, pp. 1-48.
- b. CRAM, E. B., 1947.—“Studies on schistosomiasis. Objectives of research, sources of material, and general methods.” No. 189, pp. 49-54.
- c. BERRY, E. G., 1947.—“Studies on schistosomiasis. Snails collected for the schistosomiasis investigations.” No. 189, pp. 55-69.
- d. WARD, P. A., TRAVIS, D. & RUE, R. E., 1947.—“Studies on schistosomiasis. Methods of establishing and maintaining snails in the laboratory.” No. 189, pp. 70-80.
- e. CRAM, E. B., FILES, V. S. & JONES, M. F., 1947.—“Studies on schistosomiasis. Experimental molluscan infection with *Schistosoma mansoni* and *Schistosoma haematobium*.” No. 189, pp. 81-94.
- f. WARD, P. A., TRAVIS, D. & RUE, R. E., 1947.—“Studies on schistosomiasis. Experimental molluscan infection with *Schistosoma japonicum*.” No. 189, pp. 95-100.
- g. CRAM, E. B. & FILES, V. S., 1947.—“Studies on schistosomiasis. Experimental mammalian infection with the schistosomes of man. I. Laboratory animals as source of supply of adult schistosomes and their ova.” No. 189, pp. 101-105.
- h. CRAM, E. B. & FIGGAT, W. B., 1947.—“Studies on schistosomiasis. Experimental mammalian infection with the schistosomes of man. II. Comparative study of *Schistosoma mansoni* and *Schistosoma japonicum* infections produced by immersion and by intraperitoneal injection.” No. 189, pp. 106-108.
- i. JONES, M. F. & BRADY, F. J., 1947.—“Studies on schistosomiasis. Effects of water treatment processes on schistosome cercariae.” No. 189, pp. 109-130.
- j. JONES, M. F. & BRADY, F. J., 1947.—“Studies on schistosomiasis. Survival of *Schistosoma japonicum* cercariae at various temperatures in several types of water.” No. 189, pp. 131-136.
- k. JONES, M. F., NEWTON, W. L., WEIBEL, S. R., WARREN, H. B., STEINLE, M. L. & FIGGAT, W. B., 1947.—“Studies on schistosomiasis. The effects of sewage treatment processes on the ova and miracidia of *Schistosoma japonicum*.” No. 189, pp. 137-172.
- l. JONES, M. F. & HUMMEL, M. S., 1947.—“Studies on schistosomiasis. The effect of chlorine and chloramine on schistosome ova and miracidia.” No. 189, pp. 173-179.
- m. NOLAN, M. O., MANN, E. R. & CHURCHILL, H. M., 1947.—“Studies on schistosomiasis. The protective value of chemically impregnated fabrics against penetration of schistosome cercariae.” No. 189, pp. 180-198.
- n. BOZICEVICH, J. & HOYEM, H. M., 1947.—“Studies on schistosomiasis. Intradermal and serological tests in patients with schistosomiasis japonica.” No. 189, pp. 199-212.

(277a) Wright considers, from a critical study of the relevant literature, that there is as yet no convincing evidence that more than three species of bilharzia worms attain maturity in man. A series of tables gives the known distribution by country and locality, and the recorded intermediate hosts therein of *Schistosoma haematobium*, *S. mansoni* and *S. japonicum*. There is an extensive bibliography arranged under countries. In an addendum it is stated that schistosomiasis is absent from Montserrat, the infection previously reported there having been acquired at St. Kitts. Similarly, earlier reports from Reunion are shown to be erroneous.

R.T.L.

(277b) The technique followed in experimental studies on the various schistosomes is described. Infected *Oncomelania* begin to shed cercariae within 24 hours and often in three hours. Maximum shedding occurs between noon and 4 p.m. Whereas the cercariae of *S. japonicum* rise to the surface and then remain relatively inactive, uniform suspensions of *S. haematobium* and *S. mansoni* cercariae can be obtained by stirring.

R.T.L.

(277c) The specific names are tabulated of snails, collected from eleven of the states of the U.S.A., which were tested experimentally for susceptibility to schistosome infection.

R.T.L.

(277d) Laboratory methods are described whereby the three species of Amnicolidae which serve as intermediaries for *Schistosoma japonicum* can be maintained. Details of the life-history of *Oncomelania quadrasi* are given. The relationship between the nature of the substratum and the pH of the water in aquaria was studied.

R.T.L.

(277e) Twenty-four species of Planorbidae and four non-planorbid species which occur in the U.S.A. were exposed to experimental infection with *Schistosoma mansoni* from Puerto Rico. Of these only *Tropicorbis havanensis* gave a positive result. The infectivity for mice of cercariae from laboratory-bred snails dropped from 95% in the first year to 68% in the third and fourth years. The Puerto Rican strain of *S. mansoni* failed to infect *Planorbis boissyi* from Egypt. No experimental infections with *S. haematobium* were obtained. R.T.L.

(277f) A number of American species of the family Amnicolidae, to which *Oncomelania nosophora* (the vector in Japan of *Schistosoma japonicum*) belongs, were submitted to experimental infection by *S. japonicum* miracidia. In none did development proceed to the cercarial stage, although sporocysts were recovered in some instances. R.T.L.

(277g) Cram & Files describe their efforts to establish *Schistosoma haematobium*, *S. mansoni* and *S. japonicum* in laboratory animals. With *S. haematobium*, infection was obtained in monkeys, hamsters and mice but results were too poor to be of practical use. No difficulty was experienced in infecting monkeys with *S. mansoni*, but dogs gave negative results; cutaneous exposure gave the best results in rabbits and guinea-pigs, and intraperitoneal injections in mice and hamsters. With *S. japonicum* dogs, monkeys, white mice and hamsters were readily infected. R.T.L.

(277h) Intraperitoneal injection was found to be a less efficient method than immersion in producing infection of hamsters with *Schistosoma mansoni*, the percentages of cercariae becoming adult being 19 and 33 respectively. With *S. japonicum* cercariae both methods resulted in approximately 50% becoming adult. R.T.L.

(277i) Experiments showed that alum and soda ash coagulation of raw surface water failed to remove the cercariae of *Schistosoma japonicum* even in the strength of 32 grains of ammonium alum per gallon with appropriate amounts of soda ash. These amounts were in excess of those used by municipal and Army water purification units. Filtration through diatomaceous silica removed the cercariae effectively. Seitz-type filter pads were also efficacious but leakage around the gaskets as a result of built-up pressure in the apparatus might be a source of infection to the operator. High test calcium hypochlorite, chloramine, "Halazone," succinchlorimide, "Mikroklene" and two iodine-containing compounds were all cercaricidal within varying limits up to 30 minutes at dilutions used in water sterilization in the field. D.D.T. in an emulsion used for mosquito control was not effective in concentrations of practical value. R.T.L.

(277j) The survival times of the cercariae of *Schistosoma japonicum* compared with those of *S. mansoni* in various types of water, at various temperatures and pH values, are tabulated. The observations suggest that under natural conditions water in an endemic area cannot be considered free from infection at any time of the day. Bacterial or other micro-organisms in some raw waters may influence survival, especially between 25°C. and 35°C. R.T.L.

(277k) This report deals with the effect on the eggs of *Schistosoma japonicum*, derived from dogs, of the various sewage treatment processes adopted in the U.S.A., viz., primary sedimentation, anaerobic sludge digestion, air-drying of sludge, the secondary processes of activated sludge, trickling filter and intermittent sand filtration. R.T.L.

(277l) The use of chlorine to destroy *Schistosoma mansoni* and *S. japonicum* eggs is only practical when there is a two-hour contact and under emergency conditions. Miracidia are more susceptible to weak chlorine and chloramine. Many miracidia were killed in less than 30 minutes. R.T.L.

(277m) Experiments on mice indicated that some protection against penetration by cercariae of *Schistosoma japonicum* and *S. mansoni* was given by cotton twill fabric and, to a less extent, by herringbone twill. The protective value of impregnation by 75 solutions of chemical compounds, including combinations of chemicals and emulsions, is set out in tabular form. Approximately one-third of these killed cercariae within 10 minutes before the treated fabric

was rinsed. Those effective after rinsing for 6, 9 and 12 hours and after soapy washes are listed. The most effective was N,N-diethyl lauramide which protected mice even after 144 hours of rinse; the compound was more resistant to soapy washes in acetone solution than as emulsion. Dibutyl phthalate, after 96 hours of rinse, was less effective but it was more resistant to soapy washes.

R.T.L.

(277n) In schistosomiasis japonica, intradermal tests with antigen from *Schistosoma mansoni* cercariae gave fewer false reactions than antigen made from adult worms, although the percentage of positives obtained by the latter was higher. The intradermal test gave a lower percentage of positives than the complement-fixation test. As diagnostic methods both were less reliable than the microscopical examination of the faeces, under the conditions of the experiment.

R.T.L.

278—New Biology. London.

- a. LAPAGE, G., 1947.—“The menace of the roundworm.” No. 3, pp. 49–81.

279—New England Homestead.

- *a. ANDERSON, P. J., 1947.—“Tobacco eel worms.” 120 (3), 14.

280—New England Journal of Medicine.

- a. WARREN, Jr., L. O., 1947.—“Asiatic schistosomiasis. Report of an early case.” 236 (1), 24–25.

281—Newsletter. Health and Sanitation Division, Institute of Inter-American Affairs.

- a. LUTTERMOSER, G. W., 1947.—“The control of the blood-fluke disease (schistosomiasis) in Venezuela.” (October), pp. 1–24.

(281a) This schistosomiasis number gives an illustrated summary of Luttermoser's investigations into schistosomiasis since 1940 and his anti-schistosomiasis campaign in the Caracas and Guarenas areas of Venezuela between 1941 and 1946. [His scientific papers have already been abstracted in Helminthological Abstracts.]

R.T.L.

282—North American Veterinarian.

- a. BENBROOK, E. A., 1947.—“Danger of children contracting parasitism from pets.” [Questions & Answers.] 28 (9), 614.
b. MORGAN, B. B. & GRUMMER, R. H., 1947.—“The efficacy of sodium fluoride for light infections of swine ascarids.” 28 (10), 669–672.

(282b) Sodium fluoride 1% in an ordinary dry feed was fed for one day at the rate of 5 lb. medicated feed per pig to 20 pigs harbouring *Ascaris lumbricoides*. Ten pigs fed individually consumed 2.7–22.7 gm. of the chemical and passed 92 worms; at autopsy 11 worms were recovered (89% efficacy). Ten pigs fed as a group consumed 167.8 gm. of the chemical and passed 33 worms, none being recovered at autopsy (100% efficacy). Thorny-headed worms were not affected by the treatment. No symptoms or lesions produced by the drug were observed. There was no significant difference in fluorine content of the tissues between the treated animals and untreated controls.

E.M.S.

283—Orchardist of New Zealand.

- a. JACKS, H., 1947.—“D-D for disinfecting soil.” 20 (2), 8–9.

(283a) Jacks points out that D-D mixture is available in a crude form containing 75% of a mixture of dichloropropylene and dichloropropane with impurities, and a pure form which is a 50 : 50 mixture of the two compounds. The crude form should not be used where planting follows soon after treatment. The pure form is effective in controlling eelworms and, used in potting soils, it reduces damping-off and wilt and kills 30% of weeds. In glasshouse soils and

field plots he recommends a rate of 3-5 ml. per sq. ft. [=350-575 lb. per acre] at 5-8 in. deep, or more where infection is severe. In glasshouses the top half-inch of soil should be wetted before injection, left 48 hours undisturbed, and then forked and left 3-4 weeks before planting. Heavy soils require more D-D and longer aeration than light soils. Soil temperature should be between 55°F. and 80°F. B.G.P.

284—Palestine Journal of Botany. Jerusalem Series.

- a. ZWIRN-HIRSCH, H. E., 1947.—“Nematode destroying fungi isolated from sheep dung.” 4 (1), 56-57.

(284a) Zwirn-Hirsch obtained two nematode-trapping fungi from a piece of sheep dung, one belonging to the genus *Dactylella* and the other to the genus *Arthrobotrys*. She gives an account of the cultural characteristics of the latter when grown on certain culture media and describes the conditions under which the snaring loops are produced. She found that the organs were developed on the fungal hyphae after the addition of nematodes (mainly species of *Rhabditis*) to the culture, 2-3 weeks later being the best time to observe the capture of nematodes. T.G.

285—Pamphlet. Department of Public Health, Southern Rhodesia.

- a. ANON, 1947.—“The story of schistosomiasis ('Bilharzia') and how to combat it.” No. 2 (amended), 9 pp.

286—Papers and Proceedings of the Royal Society of Tasmania.

- a. CROWCROFT, P. W., 1947.—“Note on *Anthobothrium hickmani*, a new cestode from the Tasmanian electric ray (*Narcine tasmaniensis* Richardson).” Year 1946, pp. 1-4.
b. CROWCROFT, P. W., 1947.—“Some digenetic trematodes from fishes of shallow Tasmanian waters.” Year 1946, pp. 5-25.

(286a) *Anthobothrium hickmani* n.sp. from the spiral valve of *Narcine tasmaniensis* differs from most species of the genus in the relatively simple form of the scolex. It seems most nearly related to *A. simplex*, from which it differs in the possession of a distinct myzorhynchus. E.M.S.

(286b) Eight species of trematodes were found in fishes of shallow Tasmanian waters, and the distribution of the same or related species in shallow and deep waters elsewhere is noted. *Opocoeus tasmanicus* n.sp. from *Latridopsis forsteri*, *Parahemiurus lovetiae* n.sp. from *Lovettia sealii*, *Hemiperina manteri* n.sp. from *Latridopsis forsteri* and *Cheilodactylus spectabilis*, and *Bivesicula australis* n.sp. from *Neosebastes thetidis* are described and figured. E.M.S.

287—Pastoral Review. Melbourne.

- a. GRANT, R., 1947.—“Parasitic diseases of stock; dangers of consumption of affected meat.” 57 (9), 874-875.
b. FETHERS, G., 1947.—“Parasites and their hosts.” 57 (10), 977.

288—Pennsylvania Farmer.

- *a. McINTYRE, E. R., 1947.—“Nematodes and nematocides.” 136, 261.

289—Plant Disease Reporter.

- a. VALLEAU, W. D. & JOHNSON, E. M., 1947.—“Tobacco diseases in Kentucky—1947.” 31 (11), 427-431.
b. CLAYTON, C. N. & ELLIS, D. E., 1947.—“Benzene hexachloride fails to control the rootknot nematode.” 31 (12), 487-489.

(289a) Valleau & Johnson, in reporting on tobacco diseases observed in Kentucky during 1947, mention that root-knot was observed on tobacco roots in Whitley County following an unknown rotation, and on roots of tobacco, tomatoes and melons following a maize-grass rotation. In discussing a brown root rot of tobacco of undetermined origin they say that where

good specimens could be obtained the trouble appeared to be associated with the presence of meadow nematodes [*Pratylenchus pratensis*]. There was, however, no constant association of poor growth in tobacco which could be correlated with number of the worms in the roots of bluegrass ploughed in before planting with tobacco. Fumigation with D-D of land in which meadow nematodes were known to be abundant appeared to have no appreciable effect on the growth of maize or tobacco, or on nematode counts in the roots as compared with untreated plots. T.G.

(289b) Clayton & Ellis have tested the efficacy of benzene hexachloride (hexachlorocyclohexane) as a nematocide against the root-knot nematode (*Heterodera marioni*). The requisite amount of the substance was mixed with two gallons of fine soil and broadcast evenly over the surface of certain plots each 9 ft. by 12 ft. It was then disced in to a depth of six inches. Application rates were 25, 75, 225 and 675 lb. per acre. Seeds of bean, squash and okra were sown three times in succession and five tomato plants from a nematode-free source were planted on each plot. It was found that the substance was very poisonous to all plants tested and that even at the highest dosage it did not reduce the incidence of root-knot. T.G.

290—Plant Disease Reporter. Supplement.

- a. MILLER, P. R. & WOOD, J. I., 1947.—“An evaluation of certain phases of the Emergency Plant Disease Prevention Project.” No. 167, pp. 1-21.
- b. BLODGETT, E. C., 1947.—“The Emergency Plant Disease Prevention Project in Idaho.” No. 167, pp. 22-24.
- c. PRESLEY, J. T., 1947.—“A host index of Mississippi plant diseases.” No. 169, pp. 55-168.

(290a) Miller & Wood deal with the results of war-time surveys carried out in the U.S.A. into the incidence of disease in various kinds of crops. Mention is made of the fact that “bloat” of onions caused by the eelworm, *Ditylenchus dipsaci*, was found in a new location in New York State. In Virginia and West Virginia the meadow nematode, *Pratylenchus pratensis*, was found constantly associated with winter browning of boxwood, whilst in Oregon bad infestations of both root-knot and meadow nematodes were found on celery for the first time. T.G.

(290b) Blodgett gives an account of the Emergency Plant Disease Prevention Project in Idaho and of the way in which the discovery of the potato tuber nematode, *Ditylenchus destructor*, in potatoes from the vicinity of Aberdeen, Idaho, was dealt with. It is claimed that the voluntary co-operative work carried out under the aegis of a Nematode Control Committee has been successful in devising measures whereby the spread of the disease has been largely checked. T.G.

(290c) In this compilation on the diseases affecting plants in Mississippi, Presley lists 57 hosts on which the root-knot nematode, *Heterodera marioni*, has been reported. This is the only plant-parasitic nematode mentioned. T.G.

291—Poultry Farmer. London.

- a. PENN, F., 1947.—“Feather and turpentine is no use for gape control.” 117 (3030), 8.

292—Poultry Science.

- a. TODD, A. C., 1947.—“Helminth infections in chickens from Tennessee.” 26 (5), 469-474.
- b. TODD, A. C. & McSPADDEN, B. J., 1947.—“Pastures for chickens and their relation to the parasitic fauna.” 26 (6), 576-581.

(292a) A survey, which began in 1945, of the helminths of chickens sold in various poultry markets in Tennessee, was continued in 1946. In the two years 96.7% of 872 chickens were found to harbour parasites. Ten species of nematodes, one species of trematode and nine species of cestodes were identified and their incidence recorded. The average infected bird carried 3.6 species of parasite. The practice of rearing young birds in quarters and on range separate from older birds is strongly supported. R.T.L.

(292b) When the average worm burden and the average number of parasite species found in chickens reared on bare lots without vegetation and on pasture are compared, the heaviest helminth infections are found in birds on pasture. The supplemental green food available to birds on pasture does not prevent infection but enables the birds to withstand greater worm burdens. Vegetation affords a better environment than bare range for the survival and development of infective stages.

R.T.L.

293—Practitioner.

- a. FAIRLEY, N. H., 1947.—“Advances in the treatment of tropical diseases.” 159 (952), 268–277.

294—Prensa Médica Argentina.

- a. BAZTERRICA, E., COURETOT, M. F., MONZO, O. R. & HUARTE AZCUE, A. A., 1947.—“Fistula biliar externa consecutiva a la marsupialización de un quiste hidatídico del hígado. Litiasis latente vesicular y coledociana asociada.” 34 (5), 225–233.
 b. LAGRANADA, R. A. & MARRUGAT, O. L., 1947.—“Quiste hidatídico del bazo.” 34 (23), 1050–1052.
 c. CELENER, D. & ORLANDI, M. A. R., 1947.—“Hidatidosis abdoínopelviana.” 34 (28), 1288–1292.

295—Press Bulletin. Florida Agricultural Experiment Station.

- a. NETTLES, V. F., 1947.—“Using soil fumigants to control root-knot in vegetable production.” No. 638, 4 pp.

(295a) Nettles gives general advice on the small-scale application of the following soil fumigants for the control of *Heterodera marioni*:—chloropicrin, D-D mixture, ethylene dibromide (Dowfume W-10), and uramon. The first two are applied at 2.5 c.c. per sq. ft., the third at 2.9 c.c., and the fourth, a solid, at 1 lb. per sq. yd. Treatment of soil in the plant rows only (before planting) gives adequate control only with the first crop grown.

B.G.P.

296—Presse Médicale.

- a. THIBOUMÉRY, J., 1947.—“Pseudo-tumeur inflammatoire intra-épiloïque par ascaris.” 55 (17), 192–193.

297—Proceedings of the American Society for Horticultural Science.

- a. WATTS, V. M., 1947.—“The use of *Lycopersicon peruvianum* as a source of nematode resistance in tomatoes.” 49, 233–234.

(297a) Watts gives a short account of experiments with tomato hybrids obtained from a successful cross between Michigan State Forcing and *Lycopersicon peruvianum*. A clone from the F₁ generation of this cross was crossed with various lines of *L. esculentum* and the resulting plants were tested for resistance to infestation with *Heterodera marioni*. Watts' general conclusion is that there seems little reason to doubt that varieties of tomatoes can be developed with a high degree of resistance to root-knot combined with other desirable qualities of cropping and palatability.

T.G.

298—Proceedings of the American Society of Sugar Beet Technologists. General Meeting.

- a. THORNE, G. & JENSEN, V., 1947.—“A preliminary report on the control of sugar-beet nematode with two chemicals, D-D and Dowfume W15.” 4th (1946), pp. 322–326.
 b. FLETCHER, H. L., 1947.—“Sugar beet nematode (*Heterodera schachtii*) control studies in Ontario.” 4th (1946), pp. 413–415.

(298a) Thorne & Jensen have used D-D mixture against *Heterodera schachtii* in three experiments on sugar-beet fields, in two of which Dowfume W15 (15% ethylene dibromide) was also used. (i) Spot injections of D-D mixture 6 in. deep at 2,000 and 1,000 lb. per acre at 9-in. spacing and at 500 and 250 lb. per acre at 18-in. spacing, in soil of 14% moisture at 58 F., showed best yields from the 250-lb. rate, higher rates showing delayed germination and seedling injury. The top-rate yield was less than that of the controls, which was abnormally high at

12 tons per acre, and is ascribed to a trap-crop effect the previous year, when eelworm killed the beet crop. (ii) D-D mixture at 500 and 250 lb. per acre, and Dowfume W15 at 400 and 200 lb. per acre all gave greatly increased yields in 1945 after injection 6 in. deep in soil of 13% moisture at 44°F., but D-D at 500 lb. caused seedling injury and beets developed lateral roots in place of the tap root. (iii) D-D at 500 and 250 lb. per acre applied by tractor-plough gave increased yields, and W15 at 200 lb. no increase (1945). Eelworms remained alive in the upper soil levels. Autumn injection may be preferable. Roots, trash and clods resist gas penetration, and land should be in good tilth as for planting. B.G.P.

(298b) Fletcher outlines the occurrence of the sugar-beet nematode in Ontario and describes chemical control field experiments undertaken in 1944 and 1945. In 1944 chloropicrin and D-D mixture were each applied on five plots of infested soil at the rate of 2.5 c.c. per square foot. The average stands on control, chloropicrin and D-D plots were 20, 40 and 60 respectively, and the yields were 0.72, 1.96 and 3.98 tons per acre. In 1945 D-D was applied at 4, 8, 12 and 16 c.c. per square foot, propylene dichloride at 12 c.c. per square foot, "666" benzene hexachloride at 1 gm. per square foot, and a mixture of 80% by weight ethylene dichloride with 20% propylene dichloride at 12 c.c. per square foot. Each treatment was replicated four times on plots 10 by 10 feet, surrounded by 4-foot paths. A new method of applying the chemicals in trenches which were covered in after the application, was devised so that penetration ranged from 0-12 inches. At harvest all sugar-beet had large numbers of cysts on the roots, but yields and percentage of sugar were considerably higher on the plots treated with D-D than on any of the others. The most favourable treatment seemed to be that of 12 c.c. D-D mixture per square foot. M.T.F.

299—Proceedings of the American Society of Sugar Beet Technologists. Regional Meeting. East Slope and Intermountain Area.

- *a. THORNE, G. & JENSEN, V., 1947.—"Supplemental report on the control of the sugar-beet nematode by soil fumigation." Year 1947, pp. 151-155.

(299a) Thorne & Jensen report further on the control of *Heterodera schachtii* in sugar-beet [see above No. 298a]. In the second field of the previous report, sugar-beet were planted again in 1946; after a good initial stand plants on the treated plots were killed by eelworms, which had multiplied on the large beets of the previous year. Planting beet again in 1946 on the third field led to a residual effect with D-D mixture (but not W15), treated plots giving higher yields than the controls; the great increase in the eelworm population in 1945 was yet insufficient to mask the good treatment effects. New experiments showed little difference in yield between autumn and spring injections, and 30 and 40 gall. per acre were not better than 20 and 25 gall. Dowfume W10 was not effective. Various mixtures of ethylene dibromide with D-D and with Dowfume N gave comparably good yields, better at 20 gall. than at 10 gall. per acre. Conditions for good injection results include: soil moisture and tilth as for a seed-bed, temperature between 40° and 85°F., prior ploughing, and subsequent working and/or firming of the surface. B.G.P.

300—Proceedings of Annual Conference, New Zealand Society of Animal Production.

- a. WHITTEN, L. K., 1947.—"Parasitism in relation to pasture farming." 7th, pp. 129-134. [Discussion pp. 135-136.]

(300a) In New Zealand the more important species of helminth parasites are associated with areas of predominantly winter rainfall: they are able to resist wet winters and dry summers. Heavy infestations in young animals and light infestations in adults are considered to be abnormal or at least an indication of a less perfect host-parasite adaptation, occurring with some of the most pathogenic forms. In New Zealand the predominant combination of sheep and cattle is very useful and there is some evidence that the existence of host strains of some species renders mixed grazing relatively safe. Parasitism in adult sheep can be ignored unless in abnormally

wet summers or in areas where fluke or *Haemonchus* are important. With weaned lambs and hoggets on grazing pastures both prophylactic and curative measures are essential. Rotational grazing is of great value in sheep. Calves grazing ahead of the cows at Ruakura resulted in marked reduction of the worm burden. Liver-fluke in New Zealand is restricted to the limestone country. Poverty Bay, Te Karaka and along the coast to Hawke's Bay is the most heavily infested area; fluke also occurs to a lesser extent in the Nelson Province and in Central Otago. Three native intermediaries are already known. In the succeeding discussion, Osborne pointed out that pigs in Victoria fed almost entirely on milk are frequently infected with roundworms.

R.T.L.

301—Proceedings of the Annual Meeting of the Oregon Seed Growers League.

- a. HARDISON, J. R., 1947.—“Preliminary suggestions for control of the grass seed nematode.” 6th (1946), pp. 69, 71, 73-74.

(301a) Hardison deals with the flower-gall nematode, *Anguina* [= *Anguillulina*] *agrostis*, and the reduction in yield of seed caused by it particularly in the case of Chewing's fescue and bent grasses. He gives a short account of the life-history and makes suggestions for control. Only clean, gall-free seed should be used in establishing new pastures, whilst old infested pastures should be ploughed and a one-year fallow or a one-year rotation introduced before resowing to grass. Burning over old infested pastures should help to reduce infestation. A warning is issued on the danger to livestock from feeding them with screenings containing galls from Chewing's fescue; the exact nature of the poisoning, however, is unknown. T.G.

302—Proceedings of the Royal Society of Queensland.

- a. SANDARS, D. F., 1947.—“*Pseudomicrocotyle*, a new monogenetic trematode.” Year 1946, 58, 149-152.

(302a) Among the ectoparasitic trematodes of the family Microcotylidae, collected from the gills of *Elagatis bipinnulatus* caught off the Queensland coast, there was a new form named *Pseudomicrocotyle elagatis* n.g., n.sp. The possession of paired posterior hooks on the cotylophore distinguishes it from *Microcotyle* and *Microcotylodes*.

R.T.L.

303—Proceedings of the Society for Experimental Biology and Medicine.

- a. OLIVER-GONZÁLEZ, J. & HEWITT, R. I., 1947.—“Treatment of experimental intestinal trichinosis with 1-diethylcarbamyl-4-methylpiperazine hydrochloride (Hetrazan).” 66 (1), 254-255.

(303a) Oliver-González & Hewitt show that the substance Hetrazan (1-diethylcarbamyl-4-methylpiperazine hydrochloride) effectively reduced the number of adult *Trichinella spiralis* in the intestine of experimental rats, and thereby the number of larvae which migrated to the muscles. It was administered *per os* at the rate of 200 mg. per kg. body-weight three times daily for 5-10 days and was relatively non-toxic.

P.A.C.

304—Proceedings of the Staff Meetings of the Mayo Clinic.

- a. O'NEAL, R. & MAGATH, T. B., 1947.—“*Trichostrongylus* infection of human beings: report of three cases.” 22 (10), 193-197.

(304a) The eggs of *Trichostrongylus* occurred in the faeces of three patients at the Mayo Clinic, but the species concerned in each case was not identified. In two of them the infections had apparently been acquired in Africa (Belgian Congo and French Equatorial Africa) and in the third case in Korea.

R.T.L.

305—Progress Report. Texas Agricultural Experiment Station.

- a. GODFREY, G. H., 1947.—“The use of D-D for soil fumigation.” No. 1062, 2 pp.

(305a) Godfrey reports good results from the use of D-D mixture in controlling *Heterodera marioni* on cabbage, squash, tomato, snapdragon, and gladiolus. Soil must be deeply ploughed, well cultivated, free from unrotted plant debris or clods, between 55°F. and

80°F. at the injection depth, and neither too wet nor too dry. Light rain or artificial watering, as a seal immediately after injection, is more beneficial than rolling. Spot-injection of 10 c.c. at 18-in. intervals is recommended. Complete control is not obtained under field conditions and therefore repeated treatments each year, or at least every second year, are necessary. D-D must not be applied less than three feet from the roots of growing plants. B.G.P.

306—Publicações Médicas. São Paulo.

- a. MONTEIRO DA SILVA, A., 1947.—“Tratamento das helmintíases pelas sulfas.” 18 (5/6), 49, 51-54.

(306a) Monteiro da Silva has found various sulphonamides, notably the less soluble derivatives useful in gastro-intestinal infections, to be effective anthelmintics in ascariasis and (one case only) enterobiasis. E.M.S.

307—Records of the Indian Museum.

- a. CHAUHAN, B. S., 1947.—“Description of a new filariid worm, *Squamifilaria choprai*, sp. nov. (Nematoda) from the lung of a sea-tern, from Addu Atoll, Maldives Islands.” Year 1946, 44 (4), 357-359.
b. DATTA, M. N., 1947.—“Acanthocephala from India. III. On a new genus of acanthocephalan parasite of the family Quadrigyridae, from a Calcutta fish, *Myxus cavasius* (Ham.)” Year 1946, 44 (4), 363-367.

(307a) *Squamifilaria choprai* n.sp., belonging to the subfamily Aproctinae, is described from a sea-tern from the Maldives Islands. It differs from the two known species *S. coronata* and *S. pillersi* in the size and nature of the spicules and other characters. R.T.L.

(307b) *Raosentis podderi* n.g., n.sp. is described from a silurid fish, *Myxus cavasius*, bought in the Calcutta fish market. A table sets out the distinguishing characters of the genera of Quadrigyridae of which this makes the sixth member. R.T.L.

308—Report. Experimental and Research Station, Cheshunt.

- a. READ, W. H., 1947.—“An experiment on the control of root-knot eelworm (*Heterodera marioni* (Cornu) Goodey) with D.D.” 32nd (1946), pp. 62-63.

(308a) Two plots of soil in greenhouses heavily infested with *Heterodera marioni* were injected with D-D mixture at the rate of 400 lb. per acre. The injections were made one foot apart and to a depth of 8 inches; the soil was lightly trodden immediately afterwards and then damped. Half of each plot was planted with tomatoes (variety Potentate) 14 days later and the other half 20 days after injection. No injury to the plants was apparent and no tainting of the fruit could be detected. A great reduction in the number of galls on the roots was observed as compared with plants on control plots, but the nematode was not eradicated. The results are held to be very promising, but a great deal of experimental work on this chemical is still considered necessary. M.T.F.

309—Report of the Hawaii Agricultural Experiment Station.

- a. ALICATA, J. E., 1947.—“Hexachloroethane for liver fluke treatment.” Biennium 1944-1946, pp. 95-96.
b. ALICATA, J. E., 1947.—“Local fresh-water snails suitable intermediate host for liver fluke.” Biennium 1944-1946, p. 99.
c. McFARLANE, J. S. & FRAZIER, W. A., 1947.—“Nematode-resistant tomato sought.” Biennium 1944-1946, pp. 138-139.
d. McFARLANE, J. S., 1947.—“D-D studies.” Biennium 1944-1946, pp. 146-147.

(309a) While hexachlorethane administered in a single dose yielded good results in young cattle, it is only partially effective in large or grown animals. The results of treatment of 14 dairy cattle are tabulated. It is suggested that a single dose of 100 c.c. of hexachlorethane-bentonite-water emulsion is satisfactory for young animals less than 600 lb. in weight; 20 c.c. per 70 lb. body-weight administered over a period of two days should be given to grown animals, but the total amount should not exceed 280 c.c. R.T.L.

(309b) Alicata has shown experimentally that *Fossaria ollula*, the intermediate host of *Fasciola gigantica* in cattle in the Hawaiian Islands, is also an efficient intermediary for *F. hepatica*. Although only *F. gigantica* has become established this indicates that if *F. hepatica* were to be imported it too could become endemic in the Hawaiian Islands. R.T.L.

(309c) Of five interspecific hybrids involving *Lycopersicon peruvianum* which is resistant to *Heterodera marioni*, only one produced viable seed, a cross between (*L. hirsutum* × Bonny Best) × (Bounty × BC-10) and *L. peruvianum*. Plants grown from stem cuttings of this seedling are very vigorous and, besides being highly resistant to root-knot, have field resistance to various other important diseases. In crosses of successive generations of this hybrid with *L. esculentum* various characters have segregated, including nematode resistance, which has behaved as a dominant character. M.T.F.

(309d) The yield of vegetables has been increased and *Heterodera marioni* thoroughly controlled in Hawaii by applying 200 lb. per acre of D-D when soil conditions were favourable. Under less favourable conditions only partial control was obtained from the use of 400 lb. per acre. More D-D was required for thorough fumigation at soil temperatures of 84°–86°F. than in heavier colder soils. No damage to plants was observed although one week was the longest period between fumigation and planting. The control of nematodes in tile-enclosed beds was effective without a soil cover. *Heterodera marioni* was never completely exterminated in field experiments and may be expected to increase rapidly under Hawaiian conditions. A machine suitable for treating vegetable land in Hawaii with D-D is described and illustrated. An acre of land can be treated with 250 lb. of D-D at a cost of 60–75 dollars. M.T.F.

310—Report of the North Carolina Agricultural Experiment Station.

- a. ANON, 1947.—“Crop rotations cut damage from root knot and meadow nematode.” 69th (1945–1946), p. 64.
- b. ANON, 1947.—“Soil treatments for root-knot control show progress.” 69th (1945–1946), pp. 71, 73.
- c. ANON, 1947.—“Soil treatments for control of root-knot of peach effective.” 69th (1945–1946), pp. 81–82.

(310a) Of several 3-year crop rotations tested in a tobacco-growing area where the soil is badly infested with both root-knot and meadow nematodes, the best was found to be a sequence of cotton—peanuts—tobacco. As compared with continuous tobacco, the yield was increased by nearly 400 lb. per acre, the root-knot index reduced almost to nil and the meadow nematode by 45%. A 3-year rotation of corn—oats and weeds—tobacco also gave an improved tobacco crop. Two-year rotations were less satisfactory. It was found that a rotation of cotton—peanuts—tobacco was very much more satisfactory than one of peanuts—cotton—tobacco. Cotton should therefore not be grown in the year preceding tobacco under conditions such as those in the experiment. M.T.F.

(310b) It had been found that uramon applied to root-knot-infested soil in spring or autumn gave good control of the disease but often caused reduction in the yields from the first crops following the treatment. A number of plots were treated with uramon at 1 lb. per square yard in October 1945: one series received in addition $\frac{1}{2}$ lb. cyanamide per square yard on the same day, three other series received peanut hull meal (1 lb. and 2 lb. per square yard) and cottonseed meal (1 lb. per square yard) in the following February, the meal being spaded into the upper 4–6 in. of soil. Marglobe tomatoes were planted in May and all the plots were fertilized. There were significant increases in yield over the controls in all series except uramon alone and uramon plus cyanamide. Good control of root-knot occurred in all cases. In another experiment chloropicrin, D-D mixture, ethylene chlorobromide and ethylene dibromide were tested. All treatments are reported to have given very good control of root-knot but differences between treatments were not significant, nor were the yield differences significant between any of the treatments including the control. M.T.F.

(310c) Chloropicrin at 0.13 lb. per square yard, D-D mixture at 0.08 lb. per square yard and uramon at 1 lb. per square yard were applied to old orchard land in November and peach trees were planted three months later. These treatments were effective in controlling root-knot in the first year, and on the chloropicrin plots and the D-D plots the trees grew more vigorously (as indicated by the cross-sectional areas of the trunks) than on the control plots. Uramon appeared to have a toxic effect on the trees. No data are given but a chart represents the results obtained.

M.T.F.

311—Report of the Ontario Veterinary College.

- a. KINGSCOTE, A. A., 1947.—“Department of Parasitology and Fur Bearing Animals.” Year 1946-1947, pp. 30-39.
- b. GRIFFITHS, H. J., 1947.—“A preliminary survey of the helminth parasites of lambs from Manitoulin Island, Ontario.” Year 1946-1947, pp. 85-97.

(311a) Helminth infections on fur farms in Ontario have become almost negligible on modern ranches. The occurrence of *Trichostrongylus tenuis* in geese in Canada is reported. A considerable increase in whipworm and hookworm in kennel-raised dogs was noted. One case of canine echinococcosis was recorded. Sodium fluoride was effective and safe when administered for *Ascaris* infection to 100 pigs. Beef cattle and sheep in the Burwash area of Ontario were found post-mortem to be infected with liver-fluke although no eggs were found in the droppings; dusting the area from the air with copper sulphate was not economically justifiable.

R.T.L.

(311b) Sixty lambs on Manitoulin Island, Ontario, were found to harbour 14 species of helminths, viz., *Moniezia* sp. 35%, *Muellerius capillaris* 31.6%, *Dictyocaulus filaria* 3.3%, *Haemonchus contortus* 75%, *Ostertagia circumcincta* 100%, *Trichostrongylus* spp. 36%, *Nematodirus* sp. 98%, *Cooperia* sp. 20%, *Monodontus* [= *Bunostomum*] *trigonocephalus* 45%, *Strongyloides papillosus* 43.3%, *Trichuris ovis* 85%, *Oesophagostomum venulosum* 8.3%, and *Chabertia ovina* 70%.

R.T.L.

312—Revista de la Asociación Médica Argentina.

- a. MURRAY, A. J., 1947.—“Un nuevo caso de bilharziosis vesical en la República Argentina.” 61 (607), 411-413. [English summary p. 413.]
- b. CASIRAGHI, J. C., 1947.—“Equinococosis abdominal múltiple: terapéutica biológica.” 61 (608), 482.
- c. MARRUGAT, O. L., 1947.—“Hidatidosis muscular.” 61 (608), 486-487.
- d. BRACHETTO-BRIAN, D. & SCHENA, A. T., 1947.—“Granulomatosis equinocócica de la pleura. (Seudo-tuberculosis equinocócica de Dévé).” 61 (611), 577-581. [English summary p. 581.]

313—Revista Brasileira de Biologia.

- a. FREITAS, J. F. TEIXEIRA DE, 1947.—“*Chalcinotrema salobrensis* n.g., n.sp. (Trematoda, Waretrematidae).” 7 (4), 461-464.

(313a) *Chalcinotrema salobrensis* n.g., n.sp. from *Chalcinus paranensis*, which is described and illustrated, was collected at Salobra, Mato Grosso, Brazil. It is nearly related to *Waretrema* and *Carassotrema*.

R.T.L.

314—Revista Clínica Española.

- a. ALIX, J. & LÓPEZ BRENES, J., 1947.—“Contribución a la casuística de la ascariidiosis pulmonar.” 26 (5), 348-351.
- b. OBRADOR, S., RODA, E., HERNANDO DE LARRAMENDI, M. & ESCALADA, J. G., 1947.—“Un caso de cisticercosis cerebral generalizada.” 27 (1), 45-49.

315—Revista Ibérica de Parasitología.

- a. GÁLLEGO BERENGUER, J., 1947.—“Revisión de la familia Atractidae Travassos, 1920, con descripción de dos nuevas especies.” 7 (1), 1-90. [English summary p. 66.]
- b. VIVAS, J. V., 1947.—“Expulsión de áscaris a través del ombligo.” 7 (1), 169-176.
- c. GÁLLEGO BERENGUER, J., 1947.—“Sobre un nuevo procedimiento para montar preparaciones definitivas de nematodos.” 7 (1), 177-182. [English summary p. 182.]
- d. LÓPEZ-NEYRA, C. R., 1947.—“Géneros y especies nuevas o mal conocidas de Capillariinae.” 7 (2), 191-238. [English summary pp. 236, 238.]
- e. LÓPEZ-NEYRA, C. R., 1947.—“Recientes avances de la parasitología médica.” 7 (2), 239-277. [English summary p. 277.]
- f. SERRANO SÁNCHEZ, A., 1947.—“Nematodos parásitos intestinales de los artrópodos en España.” 7 (2), 279-332. [English summary p. 318.]
- g. MONTILLA PERALES, I., 1947.—“Estudio experimental de las toxinas ascaridianas como excitomotrices de la musculatura intestinal.” 7 (3), 339-375. [English summary p. 372.]

(315a) Gállego Berenguer divides the Atractidae into four subfamilies, viz., Atractinae with the genera *Atractis* and *Leiperena*, Labidurinae comprising only the genus *Labidurus*, Rondoninae n. subfam. for *Rondonia* and *Cyrtosomum*, and Crossocephalinae with *Crossocephalus*, *Cobboldina* and *Monhysterides*. *Rondonia lophii* n.sp. is described from *Lophius piscatorius*. *Atractis* sp. Walton, 1933, is considered to be a new species and is named *A. waltoni* nom. nov. *A. granulosa* and *A. morinae* are reduced to synonymy with *A. ciola*.

E.M.S.

(315c) Small nematodes (*Tachygonetria* spp.) were mounted very successfully in Hoyer's medium, consisting of distilled water 50 gm., gum arabic 30 gm., chloral hydrate 200 gm., glycerin 10 gm. The method was satisfactory whether after formalin fixation, or after Flemming's fixative and differentiation with dilute hydrogen peroxide.

E.M.S.

(315d) López-Neyra differentiates the genera of the Capillariinae by the relative length of the oesophagus and the structure of the male tail. There is a short oesophagus in *Trichosomoides* and *Eucoleus* and a long one in *Capillaria* sensu stricto and *Capillostrongyloides*. Twenty-two species with a short oesophagus and without spines on the spicule sheath are placed in *Aonchotheca* n.g., the type species being *A. putori* (Rud., 1819) [= *Capillaria mustelae*]. Twenty-three species with a long oesophagus, numerous eggs in the uterus, and a spiny spicule sheath are placed in *Echinocoleus* n.g., the type being *E. cyanopicae* n.sp. from the intestine of *Cyanopica* and *Pica*. *Eucoleus raillieti* n.sp. is described from anseriform birds including *Anser anser* and *Anas* spp.; it includes *Trichosoma contortum* Creplin, 1839 of Railliet & Lucet, 1889. The following species fall into synonymy:—*Trichosoma curvicauda* and *T. papillifer* with *Eucoleus hirundinis*, *T. protractum* with *E. vanelli*, *Capillaria venteli* with *E. spirale*, *T. resectum* with *C. corvorum*, *T. retusum* with *Echinocoleus collare* n.comb., *T. breve* with *Echinocoleus totani* n.comb., *T. longicolle* with *C. gallinae*, *T. striatum* with *C. falconum*, *T. angustum* with *C. fringillae*, *T. turdi* and *T. ornatum* with *C. inflexa*. The validity of many species is considered doubtful.

P.A.C.

(315e) Among the helminth species recently recorded as parasites of man, López-Neyra mentions *Mesocestoides variabilis* normally found in marsupials, and discusses briefly the position of *Inermicapsifer cubensis*. Several cases of Davaineidae come under review and there have been several new records among the Filariidae. He also considers new diagnostic methods and treatment. The review covers the Protozoa also.

P.A.C.

(315f) Serrano Sánchez has studied the nematode parasites from the gut of Spanish arthropods including insects, myriapods, arachnids and isopods. The following new genera and species etc., are erected:—*Hammerschmidtella neyrai* [see also *Helm. Abs.*, 14, No. 486j] and *Leidyndema appendiculata* var. *hispana* n.var. from *Periplaneta orientalis*; *Neyraiellinae* n. subfam. with *Neyraiella neyrae* n.g., n.sp., and two new subgenera of the genus *Binema*, viz., *Binema* (*Binema*) and *Binema* (*Ornata*) with the species *Binema* (*B.*) *hispana* n.sp., *B.* (*B.*) *medinae* n.sp., *B.* (*O.*) *techae* n.sp., and *B.* (*O.*) *carmeloi* n.sp., all from *Gryllotalpa europaeus*.

T.G.

(315g) Montilla Perales has studied the action of *Ascaris* toxins on various tissues of the body. One toxin has an excitant effect on involuntary muscle which may result in a syndrome of diarrhoea. A single worm may cause intestinal obstruction. The toxins concerned are confined to the internal organs of the worm, not the cuticle: they appear to be released at intervals, not continuously. P.A.C.

316—Revista del Instituto de Salubridad y Enfermedades Tropicales. México.

- a. MAZZOTTI, L., RODRÍGUEZ, L. & TREVIÑO, A., 1947.—“Observaciones en 161 personas parasitadas con *Taenia*.” 8 (2), 155-162. [English summary p. 161.]

(316a) The 161 cases of tapeworm infection considered included 141 with *Taenia saginata*, 16 with *T. solium* and 4 with both species. There were eight cases of multiple infestation with up to five tapeworms. Ten patients with *T. solium* were examined for the presence of *Taenia* eggs in the perineal region; four were found to be positive, and of these two had eggs on the skin of other regions of the body and on the underclothing. The significance of this finding in the causation and possible dissemination of human cysticerciasis is indicated. E.M.S.

317—Revista de Investigaciones Agrícolas. Buenos Aires.

- a. GUTIÉRREZ, R. O., 1947.—“El nematode de las raicillas de los citrus *Tylenchulus semi-penetrans* en la República Argentina.” 1 (3), 119-146. [English summary p. 145.]

(317a) Gutiérrez presents a morphological and biological study of the citrus root nematode, *Tylenchulus semi-penetrans* Cobb, affecting various kinds of citrus in Argentina. Methods of collection and investigation are described, the life-history of the parasite is dealt with and its hosts are listed. The paper is illustrated with a number of drawings of adults, eggs and larvae. T.G.

318—Revista Médica de Chile.

- a. NEGhme, A. et al., 1947.—“Epidemia de triquinosis en la Escuela Militar de Chile.” 75 (8), 519-524. [Discussion p. 524.]

(318a) Symptoms of trichinosis occurred in 297 out of 474 cadets, i.e. 63.6%, after consumption of pork sausages. Some of the remainder showing no symptoms developed an eosinophile count of over 350 per cu. mm. E.M.S.

319—Revista de Medicina Veterinaria. Buenos Aires.

- a. MOSCONI, E. M., 1947.—“Strongylosis pulmonar de los ovinos. (Trabajo final.)” 29, 557-580.

(319a) After a detailed résumé of the symptoms, pathology and treatment of lungworm disease in sheep, Mosconi describes his experiments in the treatment of sheep with *Dictyocaulus*. Treatments used were a turpentine, creosote, chloroform and olive oil mixture, an iodine in potassium iodide solution, and a solution of pyrethrins with the trade name “Chemovin”. Post-mortem examination of some of the treated animals indicated a high percentage of cures with each type of treatment. E.M.S.

320—Revista de Medicina Veterinária. Lisboa.

- a. TROPA, E. & CORREIA MADEIRA, A., 1947.—“Um caso de quisto hidático cardiaco em suíno.” 42 (320), 86-93. [French summary pp. 92-93.]
b. BRITO GUTERRES, J. DE, 1947.—“A bunostomose bovina em Africa.” 42 (320), 94-104.
c. TENDEIRO, J., 1947.—“Esbôço epizootológico da Guiné Portuguesa.” 42 (321), 128-186.

(320c) Condemnations at the Municipal Abattoir, Bissau, Portuguese Guinea, for *Cysticercus cellulosae* were 35 out of 903 pigs (3.9%) in 1944 and 66 out of 1,239 pigs (5.5%) in 1945. Condemnations for *C. bovis* were 58 out of 752 bovines (7.7%) in 1944 and 34 out of 514 bovines (6.6%) in 1945. E.M.S.

321—Revista de Medicina Veterinaria y Parasitología. Caracas.

- a. VOGELSANG, E. G. & MARTÍN DEL CAMPO, R., 1947.—“Parasitología de los Nahoas.” 6 (1/4), 47–52.
- b. CABALLERO Y C., E. & VOGELSANG, E. G., 1947.—“Fauna helmintológica venezolana. I. *Ochetosoma miladelarocai* n.sp., de *Bothrops atrox* L. y hallazgo de *Physaloptera retusa* (Rud., 1819) en *Cnemidophorus lemniscatus lemniscatus*.” 6 (1/4), 53–62.
- c. CABALLERO Y C., E. & VOGELSANG, E. G., 1947.—“Presencia del *Polycephalus serialis* (Gervais, 1847) en la liebre *Lepus californicus* del Norte de Mexico.” 6 (1/4), 79–80.

(321a) During a study of some of the early literature dealing with Mexico, Vogelsang & Martín del Campo found records and pictures of various parasites. These are recognizable as *Ascaris lumbricoides* and hookworms among human parasites, and as *Toxocara canis* or *T. felis* among carnivores.

P.A.C.

(321b) Caballero y C. & Vogelsang describe *Ochetosoma miladelarocai* n.sp., a trematode parasite of the oesophagus of the snake, *Bothrops atrox*, in Venezuela. The prepharynx is a delicate structure, the oesophagus is short, the vitelline glands are numerous and the cirrus sac stretches beyond the posterior level of the testes. *Physaloptera retusa* collected from a lizard on an island in the Caribbean Sea is described.

P.A.C.

(321c) Caballero y C. & Vogelsang record the occurrence of *Coenurus serialis* in *Lepus californicus* in northern Mexico. There was a great mass of material in the abdominal muscles, abdominal cavity and subcutaneous connective tissue.

P.A.C.

322—Revista do Serviço Especial de Saúde Pública. Rio de Janeiro.

- a. BASSÈRES, M. S. & PANTOJA, W. P., 1947.—“Esquistossomose.—Prevalência de *S. mansoni* na população humana.” 1 (1), 135–148. [English summary pp. 147–148.]
- b. BASSÈRES, M. S. & PANTOJA, W. P., 1947.—“Esquistossomose. Prevalência de *S. mansoni* em Planorbídeos.” 1 (1), 149–162. [English summary pp. 161–162.]
- c. COSTA, O. R. DA, 1947.—“Incidência de parasitos intestinais em quatro cidades da Amazônia.” 1 (2), 203–219. [English summary pp. 212–213.]
- d. CAUSEY, O. R., COSTA, O. & CAUSEY, C. E., 1947.—“Incidência de parasitos intestinais do homem em Belém, Pará e vizinhanças.” 1 (2), 221–233. [English summary p. 228.]
- e. BASSÈRES, M. S. & PANTOJA, W. P., 1947.—“Vermínoses.—Algumas considerações em torno das verminoses na área do Rio Doce.” 1 (2), 235–249. [English summary p. 244.]
- f. PANTOJA, W. P. & BASSÈRES, M. S., 1947.—“Vermínoses.—Tratamento em massa pelo hexyl-resorcinol.” 1 (2), 251–260. [English summary pp. 259–260.]

(322a) Along the Victoria-Minas railway the incidence of schistosomiasis mansoni was found to fall into three zones. 15% of the total population were examined. In the zone nearest the coast infestation was generally less than 2.5% with an average of 0.9% of 1,179 examinations; in a snail survey none were found. In the second zone infestation varied between 2.5% and 46.1%, averaging 21.1% of 2,737 stool examinations; snail foci were numerous in this area and 11.1% of 4,297 specimens examined showed cercariae of *S. mansoni*. The zone furthest inland showed 12.9% positive out of 1,398 stools examined; a snail survey was carried out only at Governador Valadares in this zone, where 1.4% of 517 specimens were infested. Age distribution was highest between 15 and 24 years (24.9% against a general average of 14.4%). Males showed an incidence of 17.7% and females of 11.7%.

E.M.S.

(322b) Bassères & Pantoja give the details of the various snail surveys carried out in connection with their survey of schistosomiasis along the Victoria-Minas railway [see preceding abstract]. Snails were found in creeks 43.8%, in springs 22%, and in ditches 18.5%; these three types of breeding places furnished 84.3% of the planorbid snails collected (chiefly *Australorbis olivaceus*), and 85.2% of those found to be infested. Some evidence was found that snails travel from the Rio Doce up its small tributaries. The valley of the Rio Doce is shown to constitute a unit in the distribution of schistosomiasis, transitional between the area of high incidence in north and north-east Brazil and an area of scattered foci and low infestation in the

south. The absence of planorbid snails in the part of Espirito Santo which forms the first zone of this study can be related to the fact that rivers in this zone open directly into the Atlantic and do not belong to the Rio Doce system.

E.M.S.

(322e) In three zones along the Victoria-Minas railway [see two preceding abstracts], 4,955 faecal specimens were examined by Stoll's method for eggs of *Necator americanus*. The incidence was found to be 60.4% in the coastal zone which has a high rainfall throughout the year, and 65.2% and 42.8% respectively in the second and third zones, both with moderately high rainfall and sharply defined "wet" and "dry" seasons. *Ascaris* was found in 58.4% and *Trichuris* in 27.1%. The general incidence of helminthiasis was 86%. Examination of 5,044 specimens by Faust's method at Governador Valadares revealed a *Strongyloides* incidence of 26%.

E.M.S.

(322f) A mass treatment campaign with hexylresorcinol crystoids was conducted in labour camps and villages in Espirito Santo and Minas Gerais in 1944 to 1945. This drug is recommended where there are mixed infections of hookworm and *Ascaris*.

R.T.L.

323—Revue de Médecine Vétérinaire. Lyon et Toulouse.

- a. BRION, A. & DURIN, L., 1947.—"Toxicité de la phénothiazine pour le cheval." 98, 199-210.

(323a) Brion & Durin review published work on the toxicity of phenothiazine. Species susceptibility increases in the following order: dog, birds, rabbit, goat, sheep, cattle, pig, horse, man. Up to the present time no satisfactory explanation of this marked inequality in toxicity has been offered. They quote with approval the advice of the U.S. Department of Agriculture that before treating a number of horses, one or two of the least valuable should first be treated and observed for a week. The ideal anthelmintic for horses has still to be found.

R.T.L.

324—Revue de Pathologie Comparée et d'Hygiène Générale.

- a. RANQUE, J. & CABASSU, H., 1947.—"Les limites nord-est et sud-est du foyer Camarguais de filariose canine." 47 (591/592), 442-447.
b. JOYEUX, C., 1947.—"La pneumonie vermineuse des ovidés en Camargue." 47 (591/592), 447-449.

(324a) In a survey of the north-east and south-east geographical limits of endemic canine filariasis due to *Dirofilaria immitis* in Camargue, Ranque & Cabassu give details of the technique used and set out their results in a table and a map. From a comparison of the distribution of the parasites and of the vectors of canine filariasis and human malaria, it is concluded that a very heavy anopheline density exists in those regions of Camargue where human malaria is still to be seen, and a considerable density, although not as heavy, where there is only canine filariasis. It is suggested that the human malaria has gradually diminished in the latter case owing to quinine therapy and improved conditions of living, and that canine filariasis has survived owing to lack of adequate combative measures.

H.C.

(324b) Joyeux gives a brief comparative account of the geographical distribution of the lungworms *Protostrongylus rufescens*, *Muellerius minutissimus* and *Cystocaulus ocreatus*, which cause verminous pneumonia in sheep and goats in Camargue, south-east and central France, Corsica and Morocco. Much of the work reported earlier by Joyeux & Gaud [see Helm. Abs., 15, No. 169a] is summarized here.

H.C.

325—Rhodesia Agricultural Journal.

- a. REED, A. A., 1947.—"Control of poultry parasites." 44 (6), 643-653.

326—Rivista di Parassitologia.

- a. CARTA, A., 1947.—“Contributo alla identificazione della bilharzia dei bovini e degli ovini in Sardegna (*Schistosoma bovis*—Sonsino, 1876).” 8 (1), 37–44. [English & French summaries p. 43.]
- b. BOSCARDI, F., 1947.—“Studi sullo sviluppo e sulla struttura di *Schistosoma haematobium* nel mollusco ospite intermedio.” 8 (2/3), 67–83. [English & French summaries pp. 82–83.]
- c. BOSCARDI, F., 1947.—“Su di una metacercaria di *Echinostoma* riscontrata in *Bulinus contortus* e in *Physopsis africana* nel Fezzan (Sahara libico).” 8 (2/3), 105–111. [English & French summaries p. 111.]
- d. ARCHETTI, I., 1947.—“Descrizione di alcune nuove microfilarie di vertebrati africani.” 8 (4), 175–190. [English & French summaries p. 190.]
- e. BETTINI, S. & LAGRANGE, E., 1947.—“Controllo istologico sulle filarie dell'azione antifilarica di medicamenti.” 8 (4), 191–196. [English & French summaries p. 196.]

(326a) Carta shows that the bilharzial worms which occasionally occur in cattle and sheep in Sardinia belong to the species *Schistosoma bovis*. A photomicrograph illustrates massive infection of the spleen. The infection is a rare one in the Sassari Province. R.T.L.

(326b) Boscardi has studied in detail the development of *Schistosoma haematobium* in *Bulinus contortus* and *Physopsis africana*, particularly the method of penetration by the miracidium, the growth of the sporocyst, the diffusion of the daughter sporocysts in the molluscan tissues and the development of the fork-tailed cercariae. The various stages are illustrated by photomicrographs. No immunity of the mollusc against repeated and heavy infections could be demonstrated. R.T.L.

(326c) In *Bulinus contortus* and in *Physopsis africana* collected in the Fezzan, Boscardi has found an encysted larval echinostome which he has named provisionally *Metacercaria varieechinata* n.sp. The number of spines on the collar varies from 33 to 37. There are 12 pairs of flame cells. R.T.L.

(326d) *Microfilaria oenae* n.sp. from *Oena capensis*, *M. colobi* n.sp. and *M. guerezae* n.sp. from *Colobus polykomos poliurus*, and *M. tigrensis* n.sp. from *Lepus tigrensis* are described and illustrated. Of these *M. colobi* alone is sheathed. For each species there is a table of measurements. R.T.L.

(326e) Notable histological changes in the female organs and in the embryos of *Dirofilaria immitis* and *D. repens* in dogs and of *Icosiella neglecta* in frogs, follow the administration of certain non-antimonial antifilarial drugs [not named]. R.T.L.

327—Science.

- a. VAN CLEAVE, H. J. & ROSS, J. A., 1947.—“Use of trisodium phosphate in microscopical technic.” 106 (2748), 194.

(327a) Acanthocephala preserved in alcohol, if passed through weaker alcoholic solutions to distilled water, become soft, pliable and translucent almost immediately when placed in 0.25% solution of trisodium phosphate in distilled water, although hardened brittle specimens may require several hours or days in a warm oven. The softening action may be checked by placing the worms in distilled water. Specimens so treated stain more brilliantly in haematoxylin or borax carmine than when untreated. They may be dehydrated, cleared and mounted in clarite or damar without becoming opaque. R.T.L.

328—Service Publication. Division of Veterinary Hygiene, Department of Health, Australia.

- a. SEDDON, H. R., 1947.—“Host check list of helminth and arthropod parasites present in domesticated animals in Australia. With notes on their presence in the several States and lists of parasites which have not become established, doubtful records, etc.” No. 2, 41 pp.

(328a) In this comprehensive check-list the helminth parasites of domesticated animals are arranged under hosts and under States. In the States distribution list they are further classified as “present”, “present but rare”, “genus present but species not determined”. The following are listed as recorded but not established: *Alaria alata*, *Dicrocoelium dendriticum*,

Gastrodiscus aegyptiacus, *Prosthogonimus ovatus*, *Taenia multiceps*, *Hymenolepis* sp. (in duck), *Syngamus trachea* and *Spirocerca lupi*. Regarded as doubtful and invalid records are: *Paramphistomum cervi* (in horses), *Davainea varians* (probably identical with *D. proglottina*), *Echinococcus granulosus* (cysts in dog), *Multiceps serialis* (in sheep), *Ascaridia compressa* (in fowls), *Dictyocaulus filaria* (in cattle), *D. viviparus* (in horse and sheep), *Dochmius hypostomus* [= *Chabertia ovina*] (in horse), *Filaria bronchialis* (in cattle and sheep), *Oesophagostomum columbianum* (in cattle), *Oxyspirura parvovum* [= *O. mansoni*], *Strongylus spiralis* (?) (in lambs), *Trichinella spiralis* (in pigs and man), *Trichostrongylus capricola* (in sheep), *Triodontophorus intermedius* [= *T. serratus*] (in horse).

R.T.L.

329—Skandinavisk Veterinär-Tidskrift.

- a. HOF LUND, S. & KOFFMAN, M., 1947.—“Om parasitsjukdomar och deras bekämpande hos våra vanligaste husdjur. Sulfatyl, ett gott medel mot coccidios.” 37 (3), 129–153. [English summary pp. 152–153.]

(329a) In experiments on the treatment of coccidiosis in calves, lambs and rabbits with Sulfatyl [2-phthalyl sulphanilamidothiazole], no effect of the drug was observed on intestinal worms in calves. *Trichostrongylus retortaeformis* and *Passalurus ambiguus* in rabbits were considerably reduced.

E.M.S.

330—South African Journal of Science.

- a. CAWSTON, F. G., 1947.—“Schistosomiasis in Southern Africa in its relation to rainfall, artificial methods of control and the natural enemies of the molluscan hosts.” Year 1946, 43, 287–294.
b. ELSÖN-DEW, R., 1947.—“Intestinal parasites in Natal.” Year 1946, 43, 305–307.

(330a) [This paper has already appeared as a communication to the 44th Annual Meeting of the South African Association for the Advancement of Science, Pretoria, July, 1946. For abstract see Helm. Abs., 15, No. 271.]

(330b) Of 5,352 cases of suspected amoebiasis examined at King Edward VIII Hospital in Durban, 4,852 were Natal Africans and 500 were Natal Indians. Helminth eggs were noted in Natal Africans in the following percentage: *Trichuris* 29.58%, *Enterobius* 0.08%, *Strongyloides* 1.67%, hookworm 2.51%, *Ascaris* 37.55%, *Schistosoma mansoni* 0.8%, *S. haematobium* 0.04%, *Taenia* spp. 3.9%, *Hymenolepis nana* 0.02%. In the Natal Indians the incidence was *Trichuris* 25.6%, *Enterobius* 0.2%, *Strongyloides* 8.2%, hookworm 7.6%, *Ascaris* 38.2%, *Schistosoma mansoni* 1.4%, *S. haematobium* nil, *Taenia* spp. 1.2%, *Hymenolepis nana* nil. *S. mansoni* was associated with intractable diarrhoea and was commonly associated locally with amoebiasis. Only one case of *H. nana* infection was observed although isolated cases have been observed in Europeans locally.

R.T.L.

331—South African Medical Journal.

- a. GARIN, H., 1947.—“Notes on some cases of gynaecological complaints in gynaecological diseases.” 21 (1), 32–33.
b. GORMAN, S., MEESER, C. V., ROSS, W. F. & BLAIR, D. M., 1947.—“The macroscopic diagnosis of urinary schistosomiasis.” 21 (22), 853–854.
c. KIESER, J. A., 1947.—“Schistosomiasis: an educational problem.” 21 (22), 854–855.

(331a) Garin describes two cases of uterine localization of *Schistosoma haematobium*, one with only a very slight urinary infestation, the other completely without the usual vesical lesion.

E.M.S.

(331b) The effectiveness of anthelmintic treatment for schistosomiasis can be judged by observing the miracidia swimming in the supernatant water when the faeces are diluted with water in a conical urine jar. This procedure has been improved. Terminal urine is collected and allowed to settle. The supernatant fluid is poured off leaving only enough to fill a centrifuge tube; this is centrifuged for 2–3 minutes at low speed, the urine is poured off and a drop of the deposit is examined for eggs, etc. The remainder in the tube is diluted by filling the tube for 1½ in. with pond or river water; municipal chlorine-treated water kills the miracidia. The

tubes are then placed in a rack with a black cardboard background. The miracidia can be observed with a hand lens. The rack, called a "miracidiascope", is described and illustrated.

R.T.L.

(331c) Mental symptoms almost pathognomonic of the disease are shown by children suffering from schistosomiasis. Forgetfulness, indifference to punishment, apparent laziness, disinclination for mental exertion, with marked irritability, obstreperousness and mental fatigue may cause the child to be certified as mentally deficient. Examples in children who had infection before and after entry to school are given. Adults may be subject to a similar disability.

R.T.L.

332—Southern Medical Journal.

- a. HOOD, M., 1947.—"The practical handling of parasitology by the clinical pathologist." 40 (6), 523-530. [Discussion pp. 528-530.]

333—Southern Seedsman. Texas.

- a. CARSON, C. M., 1947.—"Stock-safe crotalaria: south's nematode-battler joins forage crops with two new non-toxic varieties." 10 (8), 13, 42.

(333a) Carson points out that two species of *Crotalaria*, viz., *C. lanceolata* and *C. intermedia*, are not susceptible to root-knot nematode and are non-toxic to livestock, whereas *C. spectabilis*, the other well known species which can be used as a non-susceptible rotational crop for the control of the root-knot nematode, is toxic to livestock.

T.G.

334—Special Circular. North Dakota Agricultural College.

- a. EVELETH, D. F. & McDONALD, M. H., 1947.—"Sodium fluoride for use in worming pigs." No. A-110, 4 pp.

335—Station Technical Bulletin. Oregon Agricultural Experiment Station.

- a. SHAW, J. N., 1947.—"Some parasites of Oregon wild life." No. 11, 16 pp.

(335a) Lists are given of some of the important parasites of Oregon fish, wild birds, deer and other wild animals. In a considerable number of the entries only the genera are identified. A series of notes of interest on some of the parasites are added. *Fascioloides magna* is reported from Oregon for the first time. *Ostertagia circumcincta*, which causes much trouble in sheep and goats, is a cause of diarrhoea in fawns on the coast hills. *Cysticercus tarandi* from the muscles of the Oregon coast deer, when fed to a dog gave rise to *Taenia krabbei*. *Wehrdickmansia cervipedis*, found under the skin of deer, has been found in horses in Oregon.

R.T.L.

336—Sveriges Utsädesförenings Tidskrift.

- a. ÅKERBERG, E., BINGEFORS, S. & LESINS, K., 1947.—"Några aktuella problem inom förädlingen med rödklöver och lusern för Mellansverige." 57 (3), 200-229. [English summary pp. 225-227.]

(336a) Åkerberg, Bingefors & Lesins deal with various problems confronting the breeder of forage and pasture crops suited to central Swedish conditions. In the case of red clover they discuss winter hardiness and resistance to stem eelworm infestation. A technique for testing the susceptibility and/or resistance of seedlings to the stem eelworm, *Ditylenchus dipsaci*, has been worked out and it has been found that strains of the varieties "Merkur" and "Ultuna" show promise of resistance to stem disease.

T.G.

337—Tea Quarterly. Ceylon.

- a. GADD, C. H., 1947.—"Disease problems." 19 (2), 61-64.

(337a) Gadd deals with the root-knot nematode, *Heterodera marioni*, and the meadow nematode, *Pratylenchus pratensis*, as parasites of tea roots, and briefly discusses the possibility of strains of both becoming specialized to tea.

T.G.

338—Technical Bulletin. Oklahoma Agricultural Experiment Station.

- a. PRESTON, D. A., 1947.—"Host index of Oklahoma plant diseases, supplement, 1947." No. T-21 (Supplement), 39 pp.

(338a) In the index to pathogens which accompanies this list of Oklahoma hosts of plant diseases the following three helminths occur: (i) *Anguina* sp. in *Sporobolus airoides*, (ii)

Heterodera marioni in *Capsicum frutescens*, *Chenopodium album*, *Phaseolus lunatus*, *Prunus* sp. *Raphanus sativus*, *Ricinus communis*, *Soja max*, *Solanum melongena* and *Viola* sp., (iii), R.T.L.
Pratylenchus pratensis in *Ulmus parvifolia*.

339—*Tijdschrift voor Diergeneeskunde*.

- a. HUMMELINCK, P. W., 1947.—“Onderzoekingen over vorm en grootte van vrij-levende larven van paardenstrongyliden.” 72 (14), 411-424. [English & German summaries pp. 415, 420.]
- b. SCHOON, 1947.—“*Paramphistomum cervi*?” 72 (23), 831.

(339a) From a study of the literature and from his own researches Wagenaar Hummelinck concludes that differentiation of the larvae of *Strongylus vulgaris*, *S. edentatus* and *S. equinus* is not conclusive until the end of the second stage, although some differences can be observed early in this stage. Comparative measurements of the free-living stages of the three species are set out in tables and diagrams. No sex differentiation was observable in these stages.

A.E.F.

(339b) Schoon reports that the rumen and reticulum of cattle from South Limburg, examined at the abattoir at Heerlen, were infected with trematodes. In one case thousands were recovered, but other animals had only light infections. Specimens sent to the Institute of Veterinary Parasitology, Utrecht, were delayed in transit and could not be diagnosed with certainty owing to deterioration: they were, however, almost certainly *Paramphistomum cervi*. Cattle examined later (all of which came from North Holland) had no infections.

A.E.F.

340—*Transactions of the American Microscopical Society*.

- a. WEBSTER, J. D., 1947.—“Helminths from the bob-white in Texas, with descriptions of two new cestodes.” 66 (4), 339-343.
- b. ACKERT, J. E., COOPER, R. M. & DEWHIRST, L. W., 1947.—“Viability of *Ascaridia* eggs under varying conditions of age and administration.” 66 (4), 383-389.
- c. RIEDEL, B. B., 1947.—“New technique on culturing and feeding ascarid eggs.” 66 (4), 396-397.

(340a) Webster has recovered a number of helminth species from *Colinus virginianus texanus*, including *Aulonocephalus lindquisti*, *Rhabdometra odiosa*, *Raillietina* (R.) *tetragona* and *R. (R.) colinia*. There were also two new species. *Raillietina* (R.) *klebergi* n.sp. can be distinguished by the possession of only 66-76 rostellar hooks, by the shape of the cirrus sac and the anterior position of some of the testes. *R. (Paroniella) minuta* n.sp. is a small form with a very small cirrus pouch; there are only 14-22 testes. Experiments were made to complete the life-history of both these species using *Tenebrio molitor*, *Tribolium castanum* and the larvae of *Phyllophaga* sp. but without success.

P.A.C.

(340b) Ackert et al. show that the viability of *Ascaridia* larvae decreases as the age of the culture increases and more of the stored nutriment is used up. Fowls experimentally infected from old egg cultures (120 days) averaged 3.4 worms per bird, and from young egg cultures (36 days) 10.2 worms per bird. Adult worms developing from old cultures give rise to larvae less viable than those from hosts fed eggs of a young culture.

P.A.C.

(340c) Riedel makes good cultures of ova of *Ascaridia galli* by first washing the worms in 5% formalin, then pressing out the uteri containing the fertile eggs, and culturing the eggs *in utero*. The uteri are transferred when necessary to fresh water in sterile dishes. Moulds do not form in such cultures. Eggs can be liberated by transferring the uteri to a small drop of water and crushing. When shaken in a bottle with sand, the egg clumps are broken up and droplets containing known numbers of eggs can readily be obtained for experimental feeding.

P.A.C.

341—*Transactions of the Kansas Academy of Science*.

- a. ACKERT, J. E. & AMEEL, D. J., 1947.—“Atropine sulfate and the retention of fowl ascarids.” 50 (2), 202-203.

(341a) Intraperitoneal injection of atropine sulphate retards peristalsis for 12 hours. When such injections follow the administration of ascarid eggs the hatched larvae have greater opportunity to proceed to their habitat in the duodenum. It is possible by this means to induce heavier infestations during experimental work.

P.A.C.

342—Transactions of the Kentucky Academy of Science.

- a. LINCICOME, D. R. & WHITT, Jr., A., 1947.—“Occurrence of *Neoechinorhynchus emydis* (Acanthocephala) in snails.” 12 (3), 19.

(342a) Post-larval or juvenile stages of development of *Neoechinorhynchus emydis*, a common parasite of turtles, have been found in the snails *Campeloma rufum* and *Ceriphasia semicarinata* in Kentucky. The larvae occurred in cysts usually in the foot tissue, occasionally at the base of the tentacles, in the tissue around the mouth or in the mantle. A *Neoechinorhynchus* had been reported previously by Whitlock in 1939 [Helm. Abs., 8, No. 338i] in *Campeloma decisum* and *Pleurocera acuta*. R.T.L.

343—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. LATNER, A. L., COXON, R. V. & KING, E. J., 1947.—“Measurement of the concentration of miracid in biological fluids.” 41 (1), 133-140.
- b. MANSON-BAHR, P., 1947.—“The practice of tropical medicine in London.” [Presidential address.] 41 (3), 269-294.

(343a) This paper deals solely with the pharmacology of Miracid D, which has been shown by experimental work in Germany to be a chemical of promise in the treatment of schistosomiasis. R.T.L.

(343b) Manson-Bahr cites cases from the tropics, seen in practice in London, of hookworm, clonorchiasis, schistosomiasis and filariasis. R.T.L.

344—United States Naval Medical Bulletin.

- a. ZELIGS, M., 1947.—“Intradermal tests with *Dirofilaria immitis* extract in human filariasis.” 47 (5), 824-826.
- b. MacCREARY, D. & BRICKER, A. G., 1947.—“The incidence of intestinal parasites among civilians employed at certain naval air bases.” 47 (5), 926-929.

(344a) Zeligs found that intradermal tests with a saline extract of *Dirofilaria immitis* in 200 patients were helpful in the diagnosis of filariasis, but were negative in 25% of suspected cases and positive in 19% of a control group. E.M.S.

(344b) Average incidences of helminth infestations among 133 native labourers employed at four naval air bases in Brazil were: Necator 71.4%, Ascaris 61.6%, Trichuris 47.4%, Strongyloides 12.8%, *Schistosoma mansoni* 4.5%. E.M.S.

345—Věstník Československé Akademie Zemědělské.

- a. SAHÁNEK, E., 1947.—“D-D—nový prostředek k desinfekci půdy v boji proti háčákům.” 21 (5/6), 242-243. [In Czech: English summary p. 243.]

(345a) Sahánek briefly reviews the American reports on the use of D-D as a soil disinfectant, and concludes that it is unlikely to have wide applications in Central Europe where, owing to the methods of crop husbandry, eelworms are less of a problem. B.G.P.

346—Veterinariya.

- a. ZAGORNI, G. A., 1947.—[Treatment of complications in Dictyocaulus infestation of calves.] 24 (1), 40. [In Russian.]
- b. ORLOV, A. I., 1947.—[Diagnostic importance and methods of investigating microfilariasis in the blood of horses.] 24 (3), 13-16. [In Russian.]
- c. [LAGERREVA, M. G.], 1947.—[Treatment and control of helminthiasis. (Abstracts of material submitted to the editor.)] 24 (3), 17-21. [In Russian.]
- d. KRASNOPEROV, N. P., 1947.—[Onchocerca infection of hoof tissues in the horse.] 24 (3), 22-23. [In Russian.]
- e. KAPITANAKI, M. V., 1947.—[More attention to the control of helminthiasis in young animals.] 24 (4), 18-19. [In Russian.]
- f. LEMISHKO, P. M., 1947.—[Examination of meat infested with unencapsulated trichinella larvae.] 24 (5), 37. [In Russian.]
- g. ZAYANCHKOVSKI, I. F., 1947.—[A study of thelaziasis in cattle.] 24 (6), 42-43. [In Russian.]
- h. CHEBOTAREV, R. S., 1947.—[Toxicity of carbon tetrachloride for horses.] 24 (9), 41. [In Russian.]

(346a) It was found that treatment with Lugol's iodine solution did not prevent losses from Dictyocaulus. Zagorni reports a great improvement in the condition of critically sick calves after treatment with 0.4-0.6 gm. of novarsenol and 0.5 gm. of sulphanilamide. C.R.

(346b) Orlov found that the highest intensity of microfilariae of *Setaria equina* in the blood of horses occurs in June-July, and that they produce functional disorders, occasionally leading to death. The clinical symptoms often are similar to equine infectious anaemia or blood protozoan infections. According to Orlov, the methods generally accepted for examining blood are of little value and he thinks that the blood should be examined in May-August and that the sedimentation test is the best in this case. For this purpose he takes 10 c.c. of blood plus 0.3 c.c. of sodium citrate; after two hours the larvae are found above the erythrocytes in the lower layer of plasma. He discusses the importance of setariasis in horses. C.R.

(346c) Lagereva abstracts notes by Boev & Redko, Ozerskaya, and Chebotarev, all three being on the treatment of sheep with phenothiazine; notes by Tikhonov & Manafov on the treatment of monieziasis in sheep; others by Kadenatsi, Avdeev, Krotov, and Mikhnyuk & Muler, the first three being on Dictyocaulus in cattle and the last on Dictyocaulus in horses; a note by Kadenatsi & Amelina on Neoascaris in calves; notes by Kadenatsi and by Velichkin & Khranov on kerosene as an anthelmintic in horses; one by Krotov on ascaris in pig, and finally one by Zagaevski on the treatment of Ascaridia and tapeworm infestation in fowls. C.R.

(346d) Krasnoperov, examining horses, found 100% to be infested in the interosseal muscles with Onchocerca. In 15.6% there were also Onchocerca in the hoof and he describes the pathological lesions thus produced. C.R.

(346e) In this general article, Kapitanaki gives the prophylactic methods which should be employed in the control of helminthiasis in domesticated animals. C.R.

(346f) According to Lemishko, the larvae of *Trichinella spiralis*, although they appear in the muscles on the 9th day after infestation, are unable to produce infestation when ingested before the 16th day; even then they are still unencapsulated. C.R.

(346g) Zayanchkovski found that in the Stalinsk district 90-96% of cattle are infested with *Thelazia rhodesii*. He gives the methods of treatment. C.R.

(346h) According to Chebotarev, carbon tetrachloride in doses of 10-80 c.c. is toxic to horses. This is mainly apparent in loss of appetite and changes in the morphological and chemical composition of the blood. In animals whose death has occurred through carbon tetrachloride poisoning, the amount of glycogen in the liver is found to be reduced and degenerative changes take place in the liver and intestine. Where horses treated with carbon tetrachloride have such diseases as piroplasmosis, nuttalliasis, encephalomyelitis and equine infectious anaemia these diseases take a much graver course. C.R.

347—Veterinarski Arhiv.

- a. MIKAČIĆ, D., 1947.—“Spisak helminta svinje mora biti popunjen jednim pripadnikom porodice Dioctophymidae.” 17 (5/6), 155-157. [In Croatian: French summary p. 157.]

(347a) Mikačić describes and figures a specimen of a *Hystrichis* found in a pig's stomach, the anterior part being buried in the submucosa. The species could not be determined. It is considered to be an accidental invasion as the known species are all parasites of aquatic birds. E.M.S.

348—Veterinary Journal.

- a. MANN, I. & MANN, E., 1947.—“The distribution of measles (*Cysticercus bovis*) in African bovine carcasses.” 103 (7), 239-251.

(348a) From the inspection of 92,845 carcasses of African cattle in Kenya, of which 7.89% were found to be infected with *Cysticercus bovis*, it was found that the usual forearm incisions revealed a far smaller percentage of infections than an incision through the neck and hump recommended by the authors. This incision had the added advantage of exposing a large cut surface which opened by itself. It failed to reveal only 4% of infections, compared with 23% not detected by the routine procedure. J.W.G.L.

349—Veterinary Medicine.

- a. MacMANAMNY, L. F., 1947.—“The control of internal parasites in dogs.” 42 (7), 265–266.
- b. CHADDOCK, T. T., 1947.—“Veterinary problems of the fur ranch. Occurrence of trichinosis in mink.” 42 (8), 283.
- c. EICHELBERGER, L. & ROMA, M., 1947.—“Phenothiazine poisoning in a farm dog.” 42 (8), 302–303.
- d. ANON, 1947.—“High cost of swine parasites.” 42 (9), 325.
- e. OLSEN, C. W., 1947.—“Anthelmintic efficacy of hexachloroethane suspension on some of the pathogenic nematodes of cattle.” 42 (9), 331–333.
- f. COHEN, H. K., 1947.—“New *Strongyloides* species.” 42 (10), 390–391.

(349a) [This article is reprinted from Aust. Vet. J., 1946, 22, 202–204. For abstract see Helm. Abs., 15, No. 174a.]

(349c) The symptoms, laboratory findings and successful treatment are described of poisoning by an unknown quantity of phenothiazine in a farm dog. A diagnosis of generalized polyneuritis was made. Complete paralysis of all extremities was the most striking symptom. Deep tendon reflexes and superficial abdominal reflexes were absent. Food and water, however, were taken freely when placed in the mouth. Excretion of the drug continued for at least six weeks. J.W.G.L.

(349e) Hexachlorethane given as a suspension to young cattle produced a considerable reduction in faecal nematode egg and worm counts. Worm counts of nine 8-months-old treated calves are compared with those of eleven comparable untreated calves and show that treatment was very successful against *Haemonchus contortus* and, to a lesser extent, against *Trichostrongylus axei* but was ineffective against *Ostertagia ostertagi* and *Bunostomum phlebotomum*. J.W.G.L.

(349f) The first case of natural infection with *Strongyloides stercoralis* in a dog in the Middle West of U.S.A. is reported. The previously recorded cases were in the states bordering on the Atlantic Ocean. The title refers to this new extension of the geographical distribution of *S. stercoralis* in the dog, not to a new species. R.T.L.

350—Yearbook of the United States Department of Agriculture.

- a. SCHWARTZ, B., 1947.—“Drugs to control parasites.” 1943–47, pp. 71–80.

(350a) Schwartz advises that sheep heavily infested with intestinal helminths should be treated early in the spring with a full therapeutic dose of phenothiazine—about 1 oz. for an adult and $\frac{1}{2}$ oz. for a lamb weighing less than 60 lb. Thereafter the entire flock should have access throughout the season to phenothiazine-salt mixture (1 : 9), placed in an open container or trough protected from the weather. As an additional precaution the flock should be treated with a full therapeutic dose whenever it appears that the mixture is not holding the helminths in check. The breeder flock should be treated with the full dose again early in the winter to condition the ewes for the cold months. Whereas in 1939 only 900 lb. of phenothiazine was used in the U.S.A., in 1940 the total consumption reached nearly 3,000,000 lb. The use of hexachlorethane-bentonite suspension for liver-fluke, of sodium fluoride for roundworms in pigs, and of skimmed milk and whey as a protection against internal parasites in pigs, is outlined. It is estimated that nearly 90,000 lb. of beef and calf livers are condemned annually for liver-fluke in the Gulf Coast area. R.T.L.

351—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

- a. SCHÜFFNER, W., 1947.—“Experimentelle Infektionen mit Staubeiern von *Oxyuris (Enterobius) vermicularis*.” 152 (1), 67–73.
- b. RANKL, W., 1947.—“Zum fluoreszenzmikroskopischen Nachweis von Wurmeiern.” 152 (2), 152–154.
- c. EMMEL, L., 1947.—“Beiträge zur Biologie und Morphologie der ‘*Cercaria ocellata*’.” 152 (3/4), 285–291.
- d. BOVENTER, K., 1947.—“Über die Verbreitung menschlicher Eingeweidewürmer in Italien.” 152 (3/4), 292–298.

(351a) Dust containing *Enterobius vermicularis* eggs proved infective by ingestion in six out of eight human volunteers. Eggs appeared on the perineum 36–53 days after infection,

and persisted for 12-26 days, after which the infection cleared spontaneously. Schöffner emphasizes the control of dust infection as a necessary corollary to anthelmintic treatment.

E.M.S.

(351b) Eggs of *Enterobius* and *Taenia* show up very distinctly in faecal smears or anal swabs stained by fluorescence microscopical techniques. Pre-treatment with acid alcohol was necessary for *Trichuris* and *Ascaris* eggs, which after staining with berberine sulphate could then be seen by secondary fluorescence.

E.M.S.

(351c) "*Cercaria ocellata*", which produces cercarial dermatitis in man, was found in *Limnaea stagnalis*, *L. ovata* and *L. palustris* as well as in *L. auricularia*. It is considered that "*C. ocellata*" probably represents at least two species, as two types of cercariae were observed to emerge from infected snails, distinguished only by their behaviour in a lighted aquarium. In attempts to find the definitive host, it was found that fowls, ducks and white mice were attacked as readily as man, but no adults were recovered.

E.M.S.

(351d) The incidence of intestinal helminths was 55.6% in 1,826 persons examined in northern Italy and 31.8% in 375 Sicilians, mainly working-class women in both regions. Faecal smears were examined for each person, a second smear being made in negative cases. The incidence of the various species in Italy was:—*Ascaris* 46%, *Trichuris* 17.1%, *Taenia* 0.4%, *Enterobius* 0.2%. In Sicily the incidences were:—*Ascaris* 23.8%, *Trichuris* 1.9%, *Taenia* 4.3%, *Enterobius*, *Trichostrongylus* and *Ancylostoma* 0.3% each.

E.M.S.

NON-PERIODICAL LITERATURE

352—BIJLMER, J., 1947.—"Over het opsporen van protozöen en eieren van enkele wormsoorten in de menselijke faeces." Thesis, Amsterdam, 98 pp. [English, French & German summaries pp. 77-88.]

Bijlmer was primarily concerned with the comparative efficacy of various concentration techniques in detecting protozoan cysts in faeces. His available cases included 78 repatriates from Japanese camps, many of whom carried helminths. Fülleborn's brine flotation technique proved best for hookworm, *Trichuris* and fertilized *Ascaris* eggs, and a dried slide for unfertilized *Ascaris* eggs. However, since eggs are very numerous in clinical ascariasis and hookworm and since trichuriasis is of no interest clinically, Bijlmer questions the need for flotation techniques for these eggs. Brug's adaptation of the Baermann technique was most reliable for *Strongyloides* larvae.

E.M.S.

353—BLOUNT, W. P., 1947.—"Diseases of poultry with specialist chapters on poultry husbandry." London: Baillière, Tindall & Cox, xvi+562 pp.

354—CHESTER, K. S., 1947.—"Nature and prevention of plant diseases." Philadelphia: Blakiston Co., 2nd edit., xi+525 pp. \$5.00.

Chapter 13 of Chester's book, pp. 353-367, deals with "diseases caused by nematodes or eelworms" which are considered in the following order: *Heterodera marioni* (root-knot nematode), *H. schachtii* (sugar-beet nematode), *Anguina tritici* (the wheat and rye nematode), *Ditylenchus dipsaci* (the stem and bulb nematode), *H. rostochiensis* (potato root nematode), *Pratylenchus pratensis* (root lesion nematode). In each case a brief account is given of the type of injury caused by the parasite, the chief symptoms of attack are mentioned and control methods are indicated. More space is devoted to *H. marioni* than to the others and control measures are discussed under seven different heads. The chapter ends with brief accounts of physiological races of nematodes, and biological control by predatory nematodes and nematode-trapping fungi.

T.G.

355—CONDIT, I. J., 1947.—"The fig." [Helminth parasites pp. 177-178.] Waltham, Mass.: Chronica Botanica Co., xviii+222 pp. \$5.00.

356—CURASSON, G., 1947.—"Le chameau et ses maladies." Paris: Vigot Frères, 462 pp.

In the course of chapters dealing with affections of the various organ systems in the camel, Curasson describes and figures many of the pathogenic helminths. In an appendix are listed five species of trematodes, seven of cestodes and 32 of nematodes reported from camels. E.M.S.

357—DAWES, B., 1947.—"The Trematoda of British fishes." London: Ray Society, 364 pp.

In this monograph Dawes deals with the Trematoda of British fishes and includes some forms collected elsewhere, from marine fishes which are also common in British coastal waters.

Chapters on the morphology of the Monogenea, the Aspidogastrea and the Digenea are followed by descriptions of the families, genera and species of Monogenea and Digenea, with useful keys. There is a bibliography, a systematic list of hosts and their parasites, and an alphabetical list of the common names of the various hosts.

R.T.L.

- 358—DICKSON, J. G., 1947.—"Diseases of field crops." New York & London: McGraw-Hill Book Co., Inc., xii+429 pp.

The introduction to this volume asserts that "a text-book on diseases of field crops cannot be completely up to date on all phases of the subject". This is well illustrated by the fact that the only references to helminth infections in this text-book are as follows: (i) under sugar cane diseases (p. 189)—"Soil type, drainage, fertility, and root damage from nematodes and insects influence the incidence and damage from this disease complex" [*Pythium root rot*]; and (ii) under cotton diseases (pp. 345-346)—"*Fusarium* wilt is interrelated closely with the root knot nematode [*Heterodera marioni* (Cornu) Goddey] and potash deficiency. The root lesion nematode [*Pratylenchus pratensis* (deMan) Filip.] probably also produces avenues of entrance for the wilt fungus".

R.T.L.

- 359—FIEBIGER, J., 1947.—"Die tierischen Parasiten der Haus- und Nutztiere, sowie des Menschen. Ein Lehr- und Handbuch mit Bestimmungstabellen für Tierärzte, Ärzte und Studierende." Vienna: Urban & Schwarzenberg, 4th edit., xii+436 pp. £2.10s. od.

- 350—HULL, T. G. et al., 1947.—"Diseases transmitted from animals to man." Springfield, Ill.: Charles C. Thomas. 3rd edit., 571 pp. \$10.50.

- 351—KING, K. M. & ANDISON, H., 1947.—"A simple plough-equipment for applying liquid fumigants to the soil." Processed Publication, Division of Entomology, Department of Agriculture, Canada, No. 68, 6 pp.

A simple apparatus is described which applies liquid fumigants in the soil when used on a wooden cradle placed on top of a plough. Its maximum discharge capacity is about 15 oz. per minute for each of the two outlets, or 30 oz. for a single outlet, with the plough operated at the rate of 2½ miles per hour. It is easy to construct on the farm or in a garage at an approximate cost of 10-15 dollars for parts.

R.T.L.

- 362—MÖNNIG, H. O., 1947.—"Veterinary helminthology and entomology. The diseases of domesticated animals caused by helminth and arthropod parasites." London: Baillière, Tindall & Cox, 3rd edit., xviii+427 pp. 31s. 6d.

- 363—NATIONAL VETERINARY MEDICAL ASSOCIATION, 1947.—"Report on diseases of farm livestock. Section V. The husbandry and diseases of pigs." London, 111 pp.

Of the parasitic diseases of the pig three helminth species are listed as definitely pathogenic to pigs in Great Britain, viz., *Ascaris lumbricoides*, *Metastrongylus elongatus* and *Hyoststrongylus rubidus*. Others present are *Choerostrongylus pudendotectus*, *Metastrongylus salmi* and *Cysticercus tenuicollis*. Of importance to public health are *Trichinella spiralis*, *Cysticercus cellulosae* and *Echinococcus granulosus*. *T. spiralis* and *C. cellulosae* are stated to be comparatively rare in pigs in Britain. Pigs act as reservoirs of *Echinococcus* but the adult parasite has rarely been found in dogs in Britain: the fox is suspected of playing an important role in the maintenance of the infection.

R.T.L.

- 364—PEARSE, A. S. [EDITOR], 1947.—"Zoological names. A list of Phyla, Classes and Orders." Durham, N.C.: American Association for the Advancement of Science, Section F. 2nd edit., 22 pp.

Pearse has prepared a revision of his 1936 list of the names of Phyla, Classes and Orders of the animal kingdom which he believes represents the best current usage and one of those which specialists in various groups would like to see adopted. The list includes the suggestions of specialists in helminthology.

R.T.L.

- 365—SHOUSA, A. T., 1947.—"Schistosomiasis (bilharziasis). A world scourge." Cairo: Government Press, 17 pp.

This is a note to the Committee on Priorities of the World Health Assembly submitted by the representative of Egypt, suggesting the inclusion of schistosomiasis on its agenda. It outlines the most salient features of the disease in Egypt and comments on the failure of the Health Section of the League of Nations to deal with the question.

R.T.L.

- 366—WHITLOCK, J. H., 1947.—"Illustrated laboratory outline of veterinary entomology and helminthology." Minneapolis: Burgess Publishing Co., 87 pp. \$3.00.